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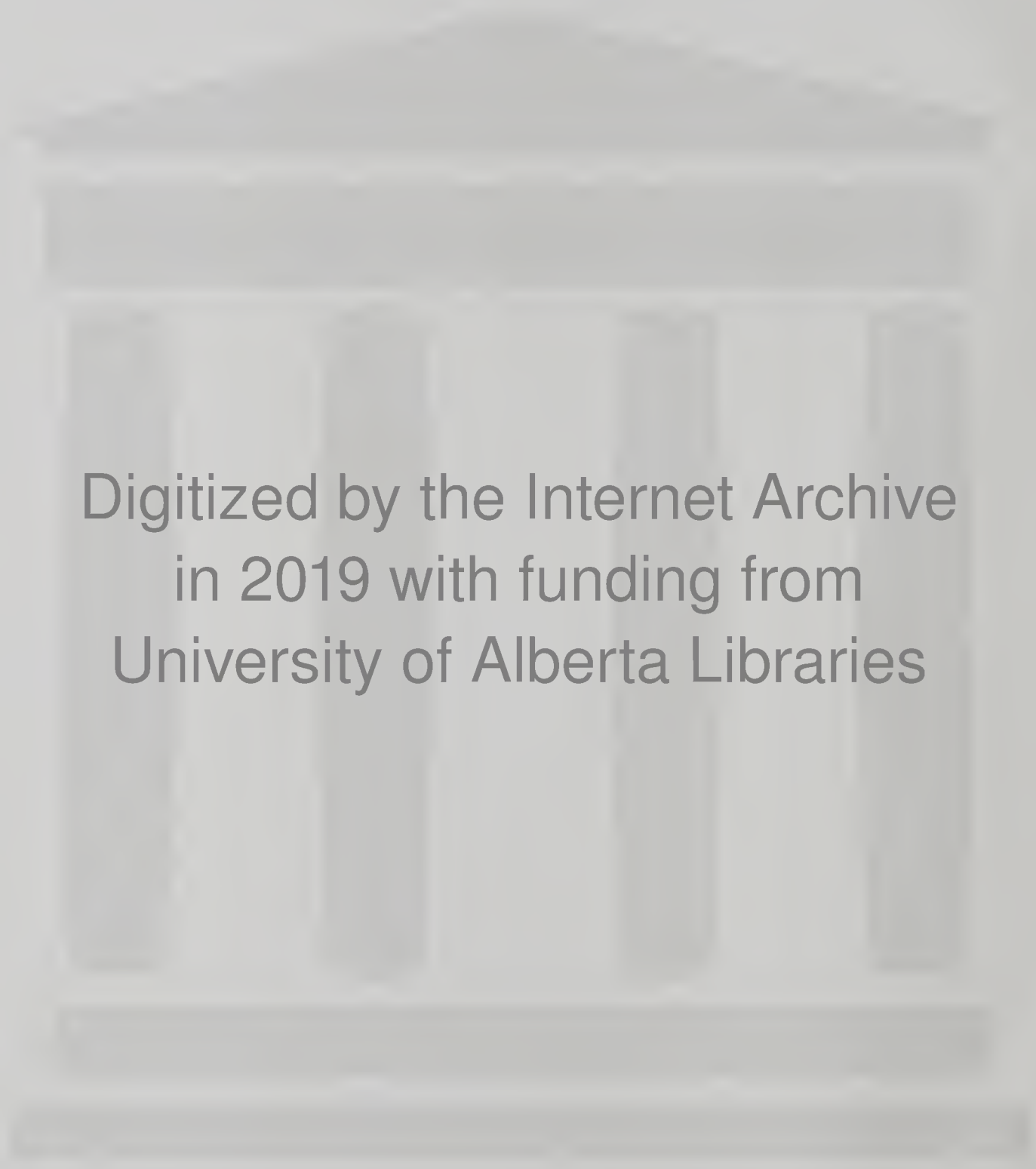
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THE UNIVERSITY OF ALBERTA

AN ANALYSIS OF TIME ALLOCATION AND SCHEDULING

PRACTICES IN THE JUNIOR HIGH

SCHOOLS OF ALBERTA

by

Edward Lloyd Deutscher

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

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The undersigned certify that they have read and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "An Analysis of Time Allocation and Scheduling Practices in the Junior High Schools of Alberta" submitted by Edward Lloyd Deutscher in partial fulfilment of the requirements for the degree of Master of Education.

ABSTRACT

The main objectives of this study were to determine and to compare the time allotment and scheduling practices of the junior high schools of Alberta. The comparisons are based on four different types of junior high school organization.

The data were collected through the use of a questionnaire which was distributed to the principals of each of the 186 schools selected. All schools organized on the basis of providing instruction in grades 7 - 9 (Type I) and in grades 7 - 12 (Type II) were contacted as well as 25 percent of the schools providing instruction in grades 1 - 9 (Type III) and in grades 1 - 12 (Type IV).

The mean length of school day, based on the time allotted to grade 9 in the 153 schools responding, was 317.5 minutes. The study showed that a single period length and an eight period day were the usual bases of a weekly schedule. The most common single period length was forty minutes.

The mean instructional time per week for mathematics, social studies and language were very closely related. The reported ranges of instructional time per week for all the compulsory subjects exceeded the ranges of flexibility set by the Department of Education.

The study revealed that students usually have two exploratory subjects available to them in any given year. The

exploratory subjects of art and music were most common in grade 7; art, music, home economics and industrial arts in grade 8, and home economics, industrial arts and oral French in grade 9. Home economics and industrial arts were usually offered for three to four periods per week and the remaining exploratory subjects were most commonly offered for from two to three periods weekly.

Approximately one-half of the schools offered the supplementary subjects and usually all the students participated.

When possible, departmentalized instruction was almost always provided. Grouping by either ability or achievement was carried on in about 50 percent of the schools where school size made grouping of any type possible.

The main conclusion was that schools organized on the basis of providing instruction in grades 7 - 12 (Type II) provided the greatest opportunity for their students with respect to total time allotted, and in general exceeded the remaining types of school organization with respect to instructional time in individual subjects. The recommendations were that schools should provide approximately equal amounts of instructional time per day, but with provision for experimentation in time allotments. It was also recommended that administrators should provide the opportunity for increased experience in the exploratory subject field.

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CHAPTER I

INTRODUCTION

The time schedule of a junior high school in the province of Alberta is regulated by the Department of Education as outlined in the Junior High School Handbook. These regulations, while outlining minimum and maximum times, provide for considerable variation within individual subjects and in total time. "The 'range' of time allotment...is designed to allow sufficient flexibility in the program to adapt it to the needs, interests and abilities of students and teachers" (1, p.7). The extent of this flexibility is subject only to the principal's decision provided that he remain within the "range."

The total instructional time per day is usually determined by administrators external to the school itself and today is strongly influenced by transportation facilities. The principal's decision within the instructional day is indicative of his philosophy with respect to the type of program which the school will provide. However, regardless of the principal's philosophy, he will find it necessary to meet the competition of external examinations in the compulsory subjects, and this external pressure combined with the limits permitted by the regulations, will influence his decision with respect to the allotment of instructional time per subject per week. One of the most flexible areas is in the selection of period lengths, and the

principal must decide what length of instructional period is most applicable. The significance of this decision is emphasized by the current consideration given to flexible scheduling where a great deal of experimentation is being done with respect to period lengths. The principal must strive for a schedule which will produce a high standard of achievement on the external examinations, and at the same time provide a broad experiential background in the exploratory subjects.

I. THE PROBLEM

Statement of the Problem

This study has attempted to determine the nature of the variations that exist in the time allocation and scheduling practices in the junior high schools of Alberta.

Purpose

This study was undertaken on the assumption that significant differences existed in the time allocation and scheduling practices in the junior high schools of Alberta. The purposes of this study were:

1. to make an analysis of the time allocation and scheduling practices in the junior high schools of Alberta;
2. to make comparisons in the total instructional time per day allotted in different junior high school

organizations;

3. to study the variations in time allotments and scheduling practices within the compulsory subjects;
4. to study the variations in time allotments and scheduling practices within the exploratory subjects;
5. to study the variations in time allotments and scheduling practices within the supplementary subjects;
6. to make comparisons of the time allotted to the compulsory, exploratory and supplementary subjects;
7. to provide information which might be of value to principals in arranging time schedules for their own schools;
8. to suggest approaches in time allotment and scheduling practices which might result in more equitable amounts of instructional time for all junior high school students;
9. to indicate areas where qualitative studies on the effects of variations in time allotment might be most fruitful.

Significance of the Study

One of the major tasks which confronts a school principal is that of time allocation and scheduling. Any information, that can be obtained with regard to patterns and trends which might

suggest areas for modification and change, is of value.

School boards and superintendents are also concerned in that the variations that exist may have implications for the length of the school day, or for the need for increased emphasis in individual subject areas.

There is a similar interest on the part of parents of students. Variations may inflict a hardship on those children who receive less instructional time when they are required to compete with others through the use of external examinations.

The Royal Commission on Education in Alberta has this to say, "It (the Commission) has some reservations as to whether it (the present length of school day) is adequate in the junior high school" (2, p. 387). The Commission states in Recommendation No. 252, "That the length of the school day in the upper junior high school be examined carefully and where circumstances warrant, extended to 330 minutes of instructional time" (2, p. 389). If this recommendation is carried out, it would have implications for the organization of junior high school time schedules.

Lorimer, in his lecture "Recent Trends in the Curriculum" (3, pp. 179 - 89) points out the desirability and the need for more local autonomy in the achievement of the school's objectives. Demands for more time for certain subjects, for the introduction of new courses, and for the deletion of "frill" subjects require a reorganization of time allotment practices. He also suggests that if the curriculum is to be kept up to date certain items must

be removed from it, or else the school day, the school year, or the number of years of schooling must be extended.

Taking into consideration the current interest in curriculum, it seemed advisable to conduct an investigation into the present time allotment practices in the junior high schools in order that administrators could be made more aware of current emphases in the curriculum.

Limitations

No attempt was made to study the effects of variations in time allotments or total instructional time on educational achievement, teacher workload or pupil load.

Instructional time referred to the length of time a teacher was responsible for a class, it did not allow for varying lengths of presentation, group or individual student instruction.

The length of the school year would add considerably to the variations in total time.

The investigation was limited to the time allotments and scheduling practices of one school year.

Delimitations

For the purpose of this study there were four basic types of junior high schools in operation in the province.

Type I - Schools offering instruction in grades seven, eight and nine, exclusively.

Type II - Schools offering instruction in grades seven to twelve.

Type III - Schools offering instruction in grades one to nine.

Type IV - Schools offering instruction in grades one to twelve.

This study does not include private schools, the Alberta Indian Schools or schools whose organizational patterns were different from those indicated above.

II. DEFINITION OF TERMS

Total instructional time per subject per week. The total number of minutes of allotted instructional time per week in that particular subject.

Total instructional time per day. The total number of minutes of scheduled instructional time per day for a particular school.

Compulsory, exploratory and supplementary subjects. Subjects taken as outlined in the Junior High School Handbook, published by the Department of Education, Province of Alberta, 1962.

The compulsory subjects are: Literature, Physical Education, Mathematics, Science, Social Studies, Language, Health and Guidance (Grade 9).

The exploratory subjects are: Art, Dramatics, Music, Home Economics, Industrial Arts, Agriculture, Community Economics, Oral French and Typewriting. These subjects are to be offered on

an elective basis insofar as the resources of the school permit.

The supplementary subjects are: Developmental Reading and Guidance and Student Government in grades 8 and 7. These subjects are to be offered in schools where staff and facilities permit.

Study periods. Periods in which no specific subjects are scheduled.

Religious instruction. Instructional periods in which religion is the specific subject of instruction; it does not include prayers or readings from the Bible at opening exercises.

Schedule. The arrangement of subjects offered in a school in a daily or weekly sequence showing the number of periods that individual subjects are offered.

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CHAPTER II

REVIEW OF THE LITERATURE

Many books on secondary school administration discuss time allotments and schedule making. The amount of attention varies considerably though it is usual for schedule making to appear as an independent chapter with time allotment a portion of the chapter. The actual research into time allotment and scheduling practices is not nearly so extensive although in the past two years an increased number of research reports have become available on the subject.

This chapter deals with both the non-research and the research literature.

I. REVIEW OF NON-RESEARCH LITERATURE

The importance of a school's schedule should not be underestimated. Linder and Gunn consider the preparation of the daily schedule as one of the most important administrative functions. They also state:

. . . it is a mistake for the administrator to consider the problem as one of mechanics, limited to the control of class size and the avoidance of program conflicts. Rather, he should consider the schedule as cumulative reflection of instructional policies which directly affect the daily work of every teacher and pupil in the school. (11, p. 165)

Anderson and Van Dyke (1, p. 151) feel that a school's schedule reflects the philosophy of the program and the adminis-

trative competence of the principal. The process of schedule making according to Williams (22, p. 227) proves the worth and competency of the principal. Other authors such as Bent and McCann (2), Burrup (4), Otto and Sanders (13) concur on the importance of the schedule as it reflects the school's philosophy and the principal's competence.

A schedule, according to Williams (22, p. 228) is worthwhile when it meets the needs of individual students, when the program it contains encourages students to remain in school until graduation, and when the courses offered provide a variety of opportunities related to the students' vocational plans. Williams also suggests that elective courses which do not challenge the students should be eliminated from the schedule.

One of the factors which affect the school's schedule is the length of the school day. Anderson and Van Dyke state:

The most appropriate length for the school day depends on community and individual school factors, which may vary considerably from one community to another. (1, p. 157)

One concomitant of the space age has been an increasing pressure to lengthen the school day and the school year. The situation in Alberta is indicative of these pressures. The Royal Commission on Education in Alberta (16) has recommended increased time for the senior high schools and action has already been taken. The Commission similarly recommends that the length of day be increased for junior high schools.

A recent publication in discussing the pressures to increase instructional time states:

Most recent proposals for improving the organization of time speak of more. The day or the week or the year at school is to be lengthened. Such proposals have merit--but not until we are using present time allocations as productively as possible. (15, p. 129)

It goes on to state:

But, above all, we need improved use of present time allocations for schooling before we indulge too generously in the luxury of more. (15, p. 132)

The impact of the above and similar statements appears to be having an immediate effect, as currently many schools are moving into the area of flexible scheduling for the prime purpose of effective utilization of time.

The amount of time allotted to a specific subject and length of period are two major areas of scheduling that reflect the decision of the principal. Smith, Stanley and Shores decry the lack of research evidence in time allotment practices. They query:

How often should a class meet - five times a week, three times, only once? And how long should a class period be? Should it be thirty minutes, forty minutes, sixty minutes? (19, p. 197)

They point out that, in view of the lack of research evidence, the main bases for time allotment practices lie in individual judgment and in regulations which in themselves are a reflection of other judgments.

Conant (5) suggests a seven or eight period day with period lengths of forty-five minutes in order to facilitate the

selection of electives by interested and capable students. While the trend has been toward longer periods, up to sixty minutes, differences of opinion exist among administrators over the merits of long or short periods.

The changes that are occurring in the junior high schools of the United States are, in many cases, concerned with aspects of team teaching and flexible scheduling. Changes will probably occur in both the number of periods per week and period length. The greatest variation, according to Trump (20, p. 29) will be in the form of instruction ranging through independent study, small group instruction and large group instruction, combined with a possibility of covering the entire junior high school program in reduced time. The implications of this type of scheduling require that we concern ourselves with our present time allocation practices to determine, if and where, changes can be implemented.

An interesting experiment in time allocation and scheduling practices is reported from Euclid Central Junior High School, Euclid, Ohio (17). Using a twenty-two minute module--sixteen modules per day--they have been able to provide increases in instructional time in all classes ranging from thirty-five minutes to 160 minutes per week. The additional time gained is to be used for both individual and group instruction. The advantages of the system appear to be related to improved discipline and increased opportunity for staff utilization and supervision of instruction by department heads. There has been no evaluation of the effec-

tiveness of this type of scheduling but first impressions seem to encourage further experimentation.

The Ridgewood High School in Norridge, Illinois (9), since it opened in 1960, has operated on a modular schedule, and in 1963 it was the first school in the United States to have a computer-built modular schedule for a team teaching high school. The schedule operates on a one ten-minute module for school opening and twenty twenty-minute modules for instruction, activities, and lunch. The class sizes are large group, discussion group (seminar), laboratory groups, and study or project groups with provision in the schedule for each student to operate independently provided he indicates that he can and will utilize this opportunity effectively. In general, large groups and seminar groups are scheduled for two modules, and laboratory groups for three modules. Provisions can also be made for extra-curricular activities within the school day on a scheduled basis.

Hamilton and Madjic (8) develop the rationale that flexible scheduling must concern itself with three characteristics; the subject, period length, and class size. Their decision was to move from a traditional sixty-minute period to a thirty-minute period and a fourteen-period day. Class sizes were changed to ninety students (large group), thirty students (medium group) and fifteen students (seminar group). Programs were then arranged in coordination with the Machine Scheduling Project of Stanford University. As an example, a senior course in United States

Government and World Affairs consisted of three sixty-minute large groups, one sixty-minute seminar group, and one sixty-minute period outside the classroom for independent study. Different patterns evolved for different grade levels and also provided for differentiation in the program for slow readers. The authors' plans for the future include two major points; a reduction in period length to twenty minutes and the elimination of the medium group. The reasons for these changes are that the authors feel that forty minutes is the optimum length for instruction for large groups and that the medium group provides no real advantage. The seminar length of sixty minutes comprised of three twenty-minute periods would continue. While no statistical evidence is presented in the article, it is becoming increasingly obvious that flexible scheduling will be linked in different forms within the different subjects.

A new approach to scheduling involves the use of computers to process scheduling data. Sinks (18) reports the use of computers in designing the schedule in the Nichols Junior High School in Evanston, Illinois, where an effort is being made to meet the rising demand for new and extended courses and to reduce administrative cost through reduced building programs and staff hiring. The single-day schedule was abandoned and a weekly schedule introduced, utilizing eleven thirty-minute modules per day. The computer application provided for increased flexibility in scheduling regular courses and particularly increased the

effectiveness of staff and plant utilization. In addition to the benefits stated above, the system is being used very effectively for pupil accounting including attendance and recording of marks. While the author does not imply that increased time is being made available for individual courses, he does point out that typical classroom usage has increased by 18 percent per week.

Besvinick (3) suggests that a serious look has to be taken at the problem of scheduling from the standpoint of number of students per class and the length of time allotted to classes of certain types. With respect to flexibility of class size he suggests five different possibilities; unlimited size for one way communication, moderate size of forty to fifty students for practice sessions, activity size with up to twelve students for seminar and discussion situations, and independent study. He feels that flexibility in class size is essential for individual development and for effective staff utilization. The question is also posed with respect to the advisability of equal blocks of time for different subjects. He proposes that modular scheduling using either twenty or thirty minute modules is a method of ensuring that the time which is allotted to a given subject per week is most effectively distributed. This modular scheduling implies that the use of computers would be desirable in schedule construction.

The use of flexible scheduling, according to Anderson and Van Dyke (1, p. 161) appears to be more compatible with contemporary educational theory than conventional schedules. Flexible

scheduling attempts to introduce functional changes in time provisions.

The literature that has been discussed above indicates that, in general, administrators must recognize the importance of a schedule as a reflection of the school's philosophy, as a means for meeting the needs of individual students, as an opportunity for enhancing the learning situation, and as an indication of their own competence. While administrators differ on such aspects of a schedule as length of day and lengths and number of periods, the current trend is to flexible or variable scheduling in an attempt to meet the needs of individual students. There is a lack of information on the desirability or suitability of particular period lengths in relation to subject matter or pupil achievement. It would appear that the use of flexible scheduling will result in more research evidence being made available to administrators.

II. REVIEW OF RESEARCH LITERATURE

The research literature on scheduling practices is not extensive and is even more limited in the area of time allotments. The following survey of the research literature deals mainly with the separate aspects that comprise a school's schedule.

One research article related to the length of school day (14) points out that an increase in the length of the school day resulted in an increase in achievement. The amount of increase was one hour and was an economic expedient related to transporta-

tion. Approximately 35 percent of the increase was allocated to academic subjects and the remaining time to extra activities. While the statistical procedures are admitted by the author as being not completely rigorous, the increase in achievement appears evident. The experiment is being continued in an attempt to substantiate the findings. While this report lacked certain statistical qualities, it is interesting to note that there was general acceptance of the increased time by the parents of the students. It would seem that there is a growing feeling on the part of society that the importance of education merits additional time spent on its acquisition.

Lambert (10) reports that in the United States 26 percent of the urban school systems with populations of 2500 or more have longer terms now than they had ten years previously. The median addition is one full week with the majority of the changes occurring three or four years prior to the study. He also states that 30 percent of the urban schools have a longer school day for secondary school students, and predicts that many systems will have an eight hour day by 1970.

Interest in the organization and administration of junior high schools has been increasing rapidly. A study by Schwartz (17) based on 390 responses from principals in the forty-eight states related to organization, indicates that the median length of the school day, including lunch periods, is 403 minutes with a median class period of fifty minutes. The median lunch period was forty minutes. One of the conclusions reached was that the optimum length

of the school day and the effective length of class period may vary according to local conditions. It would seem that the instructional time offered to Alberta junior high school students may be considerably less than the above median.

An investigation by McElhinney (12) into the relationship between length of class periods and academic achievement of secondary school pupils, found that while test results favored long periods in the majority of cases, the differences were not significant at the 5 percent level of confidence. The classes were paired on the basis of period length, one section was scheduled for forty-five minutes or less and the other for fifty-five minutes or more, and were taught by the same teacher using the same basic instructional materials. The sample covered eleven schools and included eighteen pairs of classes in the ninth grade, twenty-three in the tenth, and twenty-five in the eleventh. Gains were measured by the Iowa Tests of Educational Development and dealt with four subject areas, English, mathematics, science, and social studies. The required level of significance was not attained in any of the subject fields in any grade nor was it reached when pupil differences of ability were considered.

An interesting approach to flexible scheduling and team teaching occurred in 1962-3 in the Hawthorne High School. During this period ninety ninth grade pupils were involved in a flexible schedule combined with team teaching. A complete block of time, the entire morning, was set aside to accomodate three academic subjects, algebra, English, and world geography, and a supervised study hall.

Georgiades and Bjelke (6) compared the achievement of these students with that of students in the regular English classes in the same school. Using thirty-eight matched pairs they found that statistically the differences in achievement were not significant. In spite of this they felt there was sufficient improved pupil performance to give indication and incentive for further experimentation. While this article makes no mention of time allotment, the main purpose of the study was to investigate effective staff utilization. It is one of the first attempts at a statistical evaluation of flexible scheduling and team teaching.

Wangerin (21) investigated the variations existing in the requirements for graduation from secondary schools in Canada. Using 'clock hours' as his basis for comparison, he discovered wide variations in time allocation and subject emphases among the provinces. The total time per subject per week need only be projected to the years in junior high school to illustrate the extent of the variations and their possible effect on educational achievement.

Gorman and Johnson (7) approached the problem of study halls with an eye to determining the nature of the activity carried on in a study period. While no attempt was made to determine the amounts of time allotted to study periods, the general information is of use. They found that less than 4 percent of the students were deliberate time wasters in study periods and that in actual fact students in general appeared to apply themselves and utilized their

time to advantage. They recommend that study halls become more adequately integrated into the educational program to foster the growing emphasis on independent study.

III. SUMMARY

The foregoing review of the literature indicates the importance of scheduling in the administration of a school. The schedule is important in that it reflects the philosophy of the community and the school. It is the instrument that provides the principal and the staff with the opportunity to meet the needs of individual students, and it is probable that academic achievement and pupil and teacher satisfaction are related to the effectiveness of the schedule.

The trend has been toward lengthening the school day and pressures are still current to lengthen the school day or the year or both. Administrators appear to be meeting this pressure with attempts at improved utilization of the present amount of time available through flexible and variable scheduling.

The appropriate length of instructional period is debated by most administrators. Until recently, longer periods with six periods per day were the convention. The trend now appears to be toward a seven or eight period day with period lengths of approximately forty-five minutes. Concurrently, flexible scheduling using shorter periods and providing for variable period lengths has developed, and is gaining more recognition as a means of meeting

curriculum demands than is the single period length.

What is most apparent is the lack of knowledge with respect to the amount of time to be allotted to particular subjects. Very little information is available on what is done and even less is known about what should be done.

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CHAPTER III

DESIGN OF THE STUDY

It was decided to collect the necessary information through the use of a questionnaire. The questionnaires were distributed to the principals of the selected schools.

I. THE QUESTIONNAIRE

The questionnaire which appears in the appendix was designed mainly to provide information with respect to period lengths and number of periods per week. From this information the investigator was able to compute the total number of minutes per subject per week. Other data such as length of school day and community size were also made available. A preliminary draft of the questionnaire was distributed to four administrators for completion, suggestions and criticism. The final draft of the questionnaire incorporated some of their suggestions.

II. THE SAMPLE AND DISTRIBUTION OF QUESTIONNAIRES

The identification of the school which fell within the delimitations of the study was made through the use of the List of Operating Schools in Alberta (1963-64). This List was obtained from the Office of the Chief Superintendent of Schools.

Questionnaires were forwarded to the principals of all schools

providing instruction in grades 7 - 9 (Type I) and 7 - 12 (Type II) exclusively. Twenty-five percent of the schools of Type III and IV were chosen as the sample and were selected by taking every fourth one of the respective type as they appeared on the List of Operating Schools.

The questionnaires were numbered to assist in the collection of the data. After three weeks had elapsed a follow-up letter was sent to those schools which had not responded. Principals were assured in the initial letter that, in spite of the numbering of the questionnaire, their anonymity would be respected.

III. THE RESPONSE

An outline of the distribution and response to the questionnaire is shown in Table I.

TABLE I

QUESTIONNAIRE DISTRIBUTION AND RESPONSE

Type of School	Number Distributed	Number Received
Type I (7-9)	26	21
Type II (7-12)	42	35
Type III (1-9)	68	53
Type IV (1-12)	50	44
Total	186	153

A total of 186 questionnaires were distributed. Of the twenty-six sent to schools of Type I, twenty-one usable questionnaires were returned; thirty-five of the forty-two sent to schools of Type II; fifty-three of sixty-eight sent to schools of Type III and forty-four of fifty sent to schools of Type IV, for a response of 82.2 percent. In addition, four questionnaires were returned that were found unusable due to omissions of certain areas in the responses.

School organization and community size are outlined in Table II.

TABLE II

SCHOOL ORGANIZATION AND SIZE OF COMMUNITY

School Organization	N	Size of Community		
		More than 10,000	5,000-10,000	Less than 5,000
Type I (7-9)	21	15	2	4
Type II (7-12)	35	4	3	28
Type III (1-9)	53	12	5	36
Type IV (1-12)	44	1	1	42
Total	153	32	11	110

Thirty-two of the responding schools are situated in large urban areas, one hundred and ten are located in the rural areas, and six of the twenty-one schools of Type I are located in the larger towns or larger rural centers.

The majority of the schools included in the sample have from

three to nine teachers giving instruction in the junior high school grades. Thirty-five of the schools responding have thirteen or more teachers instructing in grades 7 - 9. Seven schools report one teacher providing instruction in all three grades.

Table III provides an outline of school organization and the number of teachers providing instruction in the junior high school grades.

TABLE III

SCHOOL ORGANIZATION AND NUMBER OF TEACHERS

School Organization	N	Number of Teachers					
		1	2	3-6	7-9	10-12	13 or more
Type I (7-9)	21	-	-	-	4	3	14
Type II (7-12)	35	-	-	2	14	2	17
Type III (1-9)	53	7	9	26	1	6	4
Type IV (1-12)	44	-	2	26	14	2	-
Total	153	7	11	54	33	13	35

School organization and the number of grade 9 classrooms are shown in Table IV. Nine schools in the sample indicated the presence of grades 8 and 9 or grades 7, 8 and 9 in the same classroom (multiple grades). Almost one-half of the schools reporting have a single grade nine classroom (i.e. a single register). Approximately one-sixth (25) of the schools have four or more grade nine classrooms.

TABLE IV

SCHOOL ORGANIZATION AND NUMBER OF GRADE NINE CLASSROOMS

School Organization	N	Number of Grade Nine Classrooms					
		Multiple Grades	1	2	3	4-6	7 or more
Type I (7-9)	21	-	-	4	3	10	4
Type II (7-12)	35	-	5	12	9	9	-
Type III (1-9)	53	9	33	5	4	2	-
Type IV (1-12)	44	-	34	10	-	-	-
Total	153	9	72	31	16	21	4

IV. TREATMENT OF THE DATA

The data are presented in two ways; analyses involving the data from all schools combined, and analyses involving schools by type.

Chapter IV deals with the length of school day, recess periods, and period lengths. The data are presented by school type.

Chapters V, VI and VII deal with the compulsory, exploratory, and supplementary subjects respectively. Information in these chapters is presented, first, for all schools combined, and second, for schools by type on an individual subject basis.

Chapter VIII presents data on study periods.

Chapter IX provides information on schools offering religious instruction.

Chapter X discusses departmentalized instruction and grouping

practices. The data are presented by school type.

The data are presented mainly with the intention of demonstrating the variations in scheduling practices within individual subject areas. As such, extensive use is made of ranges, means, and modal intervals (the modes for grouped data) as the bases for comparison and discussion.

V. TESTS OF STATISTICAL SIGNIFICANCE

Tests of statistical significance have been applied in three areas. A "t" test of the significance of the difference between the mean lengths of instructional day for the four types of schools was carried out. This decision was based on the assumption that the distributions were near normal and that the types of schools could be considered as independent samples. The null hypothesis was assumed and the level of significance required for the rejection of the null hypothesis was .01.

The "t" test was also used to test the significance of the difference between the mean amounts of instructional time per week in the examination subjects, literature, mathematics, science, social studies, and language of Grade 9, with respect to school types. The null hypothesis was assumed and the level of significance required for the rejection of the null hypothesis was .05.

The decision to use "t" tests as a test of statistical significance is based on the discussion of the question of assumption by McNemar (1, pp. 105-8). He reports that while the appropriateness

of the "t" test is related to normality of distribution and equality of variance, violations in either the normality or variance assumptions do not seriously affect the results. It appeared by inspection that the distributions of the reported times approximated normality, and that the variances did not differ markedly.

A chi square test was used to test the significance of rural-urban differences in length of instructional day within types of school organization. Assuming the null hypothesis and choosing the .01 level of confidence, the null hypothesis was retained for all types of schools.

REFERENCES FOR CHAPTER III

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CHAPTER IV

LENGTH OF SCHOOL DAY AND PERIOD LENGTHS

The main body of this chapter deals with the variations in length of instructional time per day and variations in period lengths. It also includes information on recess periods.

I. LENGTH OF INSTRUCTIONAL DAY

The variations in length of instructional time per day, excluding recess, are outlined in Table V.

The range of instructional time per day is from 270 to 360 minutes. The extreme low of this range cannot be regarded too seriously as the school reporting this lower limit is a one-teacher, rural school. Only two schools report an instructional day of less than 300 minutes.

The modal interval for Type I (7 - 9) and Type IV (1 - 12) schools is 320 - 324 minutes per day. The modal interval for schools of Type III (1 - 9) is twenty minutes less per day and for schools of Type II (7 - 12) is ten minutes more.

The mean length of the instructional day in schools of Type II is 334.0 minutes; this is 20.3 minutes above the mean for schools of Type I and 30.6 minutes higher than the mean for schools of Type III. The mean for the 153 schools is 317.5 minutes per day in grade 9.

The most important characteristic of the variations in the length of the school day is the distribution for schools of Type II.

All but one of these schools report lengths of day of 320 minutes or more. The reason for this distribution undoubtedly lies in the regulations requiring increased time for senior high school instruction.

Schools of Type I, II and III provided uniform instructional time per day for all grades 7 - 9. Schools of Type IV reported several variations in lengths of recess periods for these grades, resulting in variation in lengths of day between grades. The mean length of school day (317.5 minutes) is based on the figures reported for grade 9.

TABLE V

LENGTH OF INSTRUCTIONAL DAY IN MINUTES EXCLUDING RECESS

School Type	Mean	Modal Interval	Range
Type I (7-9)	313.7	320 - 324	300 - 336
Type II (7-12)	334.0	330 - 334	320 - 360
Type III (1-9)	303.4	300 - 304	270 - 320
Type IV (1-12)	323.2	320 - 324	300 - 350
All (153) Schools	317.5	300 - 304	270 - 360

Table VI reports the level of significance of the difference between means for school types. The null hypothesis is rejected in all cases. It would appear to be safe to conclude that the differences

between the mean lengths of instructional day are significant and are related to type of school organization.

TABLE VI

STATISTICAL SIGNIFICANCE OF THE DIFFERENCES BETWEEN
MEAN LENGTHS OF INSTRUCTIONAL DAY

School Organization	Type I	Type II	Type III	Type IV
Type I (7-9)	---	.01	.01	.01
Type II (7-12)	---	---	.01	.01
Type III (1-9)	---	---	---	.01

Table VII provides information relating length of school day and community size. It shows the number of schools of each type within the three community size classifications which have a school day either above or below the mean length of school day for the respective type. The majority of schools of Type I, II and III in the urban areas have school days in excess of the mean length of day, whereas in the rural areas the majority of schools of all types have a length of day which is less than the mean. A chi square test was used to determine if a relationship could be asserted between length of school day and community size. Contingency tables for each type were set up using the number of schools above and below the mean and the three community size classifications. The null hypothesis was assumed and

the level of confidence was selected at .01. In this case the null hypothesis was retained for all types, although schools of Type I and Type III very nearly approached the required level of confidence.

TABLE VII

RELATIONSHIP BETWEEN LENGTH OF INSTRUCTIONAL DAY
AND SIZE OF COMMUNITY

Type and Mean	Population					
	More than 10,000		5,000 - 10,000		Less than 5,000	
	Above Mean	Below Mean	Above Mean	Below Mean	Above Mean	Below Mean
Type I (313.7)	9	6	2	0	1	3
Type II (334.0)	3	1	2	1	10	16
Type III (303.4)	9	3	1	4	10	26
Type IV (323.2)	0	1	1	0	19	23

II. RECESS

The variations in time allocated to recess are reported in Table VIII. Four of the thirty-two urban schools (serving communities of over 10,000 population) and seven of the eleven schools serving communities of 5,000 - 10,000 population report a recess period. The remaining schools that report a recess are situated in communities of less than 5,000 population. It would appear that the urban centers tend to omit the recess period.

Schools of Type I and II tend to omit the recess period as only

six of the former and nine of the latter report any recess period. Length of recess period for these schools is usually between five and eight minutes, morning and afternoon. Most schools of Type III and IV offer a recess period, with schools of Type IV generally allotting five to ten minutes for recess both morning and afternoon.

TABLE VIII

MEAN NUMBER OF MINUTES PER DAY ALLOTTED TO RECESS

Type of School	Grade	Number of schools reporting recess	Mean length of recess per day in minutes
Type I (7-9)	9 - 7	6 (21)*	11.0
Type II (7-12)	9 - 7	9 (35)	11.7
Type III (1-9)	9 - 7	41 (53)	28.5
Type IV (1-12)	9	34 (44)	14.7
	8	37 (44)	17.2
	7	38 (44)	17.6

* The numbers in brackets represent the total number of schools of that type.

Schools of Type III utilize a ten to sixteen minute recess period morning and afternoon, with the majority using a fifteen minute recess period. This is probably due to the presence of the elementary grades.

III. PERIOD LENGTHS

Period lengths vary from fifteen minutes to sixty minutes. The

majority of schools tend to use period lengths of thirty-five to forty-five minutes, probably as a direct result of the departmental regulations. Table IX illustrates the variation in period lengths and the number of schools, by type, that utilize the period length which falls in the interval chosen. Of the 153 schools reported in the

TABLE IX

LENGTH OF INSTRUCTIONAL PERIOD

Length of Period in Minutes	Number of Schools Reporting			
	Type I	Type II	Type III	Type IV
15 - 19	-	-	1	1
20 - 24	-	-	4	2
25 - 29	-	-	1	3
30 - 34	-	1	20	6
35 - 39	14	4	38	16
40 - 44	8	30	28	37
45 - 49	-	3	16	4
50 - 54	1	1	7	2
55 - 59	-	-	-	-
60 - 64	-	-	12	1

study, ninety-three use a single period length, another twenty-eight use two (usually these are different morning and afternoon) and the remainder use three or more different period lengths. These latter

schools usually do not have departmentalized instruction. The most common period length is forty minutes with fifty-four schools reporting their sole usage. Fifteen schools use either a thirty-seven, thirty-seven-and-a-half or thirty-eight minute period as their single period length. Schools of Type II (7 - 12) and Type IV (1 - 12) tend to reflect the influence of the high school as they indicate a preference for the forty minute period, whereas schools of Type I and III prefer the thirty-five to thirty-eight minute periods.

The ninety-three schools utilizing a single period length and the twenty-eight schools using two period lengths as the basis for their scheduling have, with five exceptions, an eight period day, as shown in Table X.

TABLE X

NUMBER OF INSTRUCTIONAL PERIODS PER DAY

School Organization	Number of Periods			
	6	7	8	10
Type I	1	—	20	—
Type II	1	—	34	—
Type III	1	1	27	1
Type IV	—	—	35	—

One of these exceptions, a school of Type III, operates on the basis of ten thirty-minute periods per day. Another school, also of

Type III, utilizes six fifty-minute periods per day and reports scheduling half periods. One school of Type I also uses a six period day consisting of five fifty-four-minute periods and one forty-minute period. One of the two remaining exceptions to the eight period day is a school of Type II which uses six fifty-minute periods per day but schedules on either a four or eight day cycle; the other, a school of Type III, operates on seven forty-two-minute periods per day on a six day cycle. These contrast with all the other cases which use a weekly basis for their scheduling.

Four schools report the use of double periods resulting in instructional periods of seventy-five or eighty minutes. It is probable that more schools utilize double periods in their scheduling but it was possible to respond to the questionnaire as though all periods were single periods. It is likely that this is the reason for so few schools indicating the use of the double period.

Only one school reports the use of the semester system for the exploratory subjects. The respondent states: "The semester system in music and drama has been the answer to many formerly irritating needs of a large school". (The semester system for exploratory subjects implies that an exploratory subject may be offered for a half year provided the time requirements are met.)

Of the thirty-two schools that report the use of three or more different period lengths, the majority are schools where a single teacher handles a class. Twenty-three of these schools are of Type III and the remaining nine are of Type IV. None of these

are utilizing varied period lengths as a result of flexible scheduling involved in team teaching.

Of the 153 schools reporting, only one reports the use of team teaching and in this school, team teaching is applied to one subject--oral French. It appears that junior high school administrators have not yet begun to experiment with team teaching or flexible scheduling.

IV. SUMMARY

The mean length of instructional day for the 153 schools reporting is 317.5 minutes. Schools organized as Type II (7 - 12) in general, offer the longest instructional day and report a mean length of 334.0 minutes.

The differences between the mean lengths of instructional day of the four school types were all statistically significant at the .01 level.

Rural urban differences were not statistically significant but there is a strong probability that a relationship does exist between length of school day and community size, particularly for schools of Type I and III.

Recess as popularly construed is allotted mainly in schools of Type III. Schools of this type have a mean length of recess per day of 28.5 minutes. Schools of the remaining types of organization tend to have no recess, particularly in schools of Type I and II, or else shorter recess periods.

The most popular length of instructional period is forty minutes. The majority of schools (ninety-three) tend to use a single period length for their schedules. Administrators generally use an eight period day as the basis of their weekly schedules.

Nothing is reported in the nature of flexible scheduling and only one school reports the use of team teaching and then in only one subject area--oral French.

CHAPTER V

THE COMPULSORY SUBJECTS

This chapter contains data dealing with the compulsory subjects: literature, physical education, mathematics, science, social studies, language, health and guidance IX of the junior high school curriculum. The data are shown in two parts; the first part is a compilation giving an overall analysis; the second is a subject analysis showing variations among the four types of schools.

I. THE COMPULSORY SUBJECTS

The data for all schools are shown by subject giving the departmental requirements, means for each grade, modal intervals and ranges, in Table XI. The mean instructional time in minutes per week for all subjects, except that of grade 9 guidance, falls within the limits set out by the Department of Education in the Junior High School Handbook. The modal intervals, in all cases, fall within the limits of the regulations. The most significant aspect of this table is the range column. It is here that one sees the extreme variation that can exist within the junior high school schedules. Language, for example, is in one instance allotted for 87.5 minutes less than the required time and in another for 57.5 minutes more than the departmental requirements. While these ranges appear extreme, it should be noted that there are a greater number of schools that

TABLE XI

INSTRUCTIONAL TIME PER WEEK ALLOTTED TO THE COMPULSORY
SUBJECTS IN 153 SCHOOLS

Subject	Departmental * Regulations	Mean for Grade			Modal Interval	Range
		9	8	7		
Literature	112.5 - 150.0	133.9	132.6	135.1	120 - 134	60 - 225
Physical Education	75.0 - 150.0	88.9	90.5	91.8	75 - 89	30 - 200
Mathematics	150.0 - 225.0	211.6	209.0	210.1	195 - 209	140 - 300
Science	150.0 - 225.0	203.1	201.7	201.2	195 - 209	120 - 260
Social Studies	187.5 - 262.5	215.8	213.9	212.6	188 - 202	125 - 320
Language	187.5 - 262.5	214.2	214.0	214.4	188 - 202	100 - 320
Health IX	37.5 - 75.0	59.7	-	-	30 - 44	30 - 150
Health VII & VIII	75.0 - 75.0	-	79.6	81.4	75 - 89	30 - 160
Guidance IX	75.0 - 75.0	68.0	-	-	75 - 89	25 - 150

*These figures are based on the number of periods, each of 37.5 minutes, suggested in the Junior High School Handbook.

report times in excess of the departmental requirements than there are that report less. (Tables XII and XIII.)

Language and social studies which have the same limits (187.5 - 262.5 minutes per week) set by the department have a variation of less than two minutes between the means within grades, and the modal intervals for these subjects fall at the lower limit of the requirements (188 - 202 minutes per week). This can be contrasted with the means between grades for mathematics and science which have a variation of approximately eight minutes and whose modal intervals fall forty-five minutes above the lower limit of their departmental requirements. Junior high school administrators apparently equate the instructional requirements for mathematics, social studies, and language, with science a near equal. The prevalence of the forty-minute period indicates that the most frequent time allotment for these four subjects is 200 minutes per week or five periods.

The number of schools reporting instructional time at or above the maximum limits set by the regulations is noticeably high for four subjects: literature, mathematics, science, and health IX (Table XII). This appears to substantiate the claim that junior high school administrators tend to equate the subjects of mathematics and science with language and social studies with respect to time allotment. Approximately 30 - 40 percent of the schools of Type I, II and III allot instructional time at or above the maximum requirements in literature, mathematics, and science. One exception exists in schools of Type III where twenty-seven out of fifty-three schools offer

TABLE XII

NUMBER OF SCHOOLS ALLOCATING INSTRUCTIONAL TIME AT OR ABOVE MAXIMUM
REQUIREMENTS SET BY THE DEPARTMENT OF EDUCATION

Subject	TYPE I N = 21 Grade			TYPE II N = 35 Grade			TYPE III N = 53 Grade			TYPE IV N = 44 Grade		
	9	8	7	7	8	9	7	8	9	7	8	9
Literature	9	7	9	12	12	12	16	16	16	11	9	11
Physical Education	-	-	-	1	1	1	-	-	-	1	1	2
Mathematics	9	8	7	13	14	16	27	18	24	8	11	9
Science	8	7	6	13	11	14	11	9	10	4	7	5
Social Studies	-	1	1	-	2	1	4	3	4	1	1	1
Language	2	2	2	4	4	5	1	3	2	-	1	3
Health	6	15	15	20	31	31	11	28	31	15	28	31
Guidance IX	10			21			15			26		

instruction at this level in grade 9 mathematics.

Table XIII shows the number of schools which allocate instructional time below the minimum requirements set by the Department of Education. Schools of Type II (7 - 9) evidence the greatest likelihood of meeting the departmental requirements, whereas a number of schools of Type III (1 - 9) and IV (1 - 12) do not meet the requirements in physical education, social studies, and language. Schools organized as Type I (7 - 9) seem to follow this trend, with respect to physical education, as approximately 30 percent offer less than the minimum instructional time required. The figures for health (grades 8 and 7) and guidance IX in Tables XII and XIII are high in comparison with most of the other subject areas. This is because no range in instructional requirements exists for these subjects in the departmental regulations.

The percentage of time allotted to the compulsory subjects is shown in Table XIV. These percentages are computed using the sum of the mean instructional times for the compulsory subjects and the mean length of instructional time per day for the different types of school organization. These figures have implications for the overall program of the junior high school. When we consider that the length of the school day is greatest for schools of Type II and that schools of this type almost always demonstrate the highest mean instructional time per subject per week, the figures illustrate that more time is available for the exploratory and supplementary subjects, and thereby these schools should be able to provide the most extensive

TABLE XIII

NUMBER OF SCHOOLS ALLOCATING INSTRUCTIONAL TIME BELOW THE MINIMUM
REQUIREMENTS SET BY THE DEPARTMENT OF EDUCATION

Subject	TYPE I N = 21 Grade			TYPE II N = 35 Grade			TYPE III N = 53 Grade			TYPE IV N = 44 Grade		
	9	8	7	9	8	7	9	8	7	9	8	7
Literature	-	-	-	1	2	1	2	1	2	-	2	2
Physical Education	6	6	7	1	1	2	22	18	17	5	8	8
Mathematics	-	-	-	-	-	-	-	-	-	-	2	1
Science	-	-	-	-	-	-	1	1	1	-	3	2
Social Studies	-	-	1	-	1	-	7	9	11	5	7	8
Language	-	1	1	-	1	-	10	9	12	5	9	8
Health	-	6	6	-	4	4	-	24	21	-	14	12
Guidance IX	10			11			34			14		

school program. Conversely, it would seem that schools of Type III would have to provide a more restricted program.

It is not possible to compare the figures for grade 9 in Table XIV with those of grades 8 and 7 as the departmental regulations require, at the minimum, one additional period per week for grade 9. Comparisons can be made among types of school organization and within grades.

TABLE XIV

PERCENTAGE OF TIME ALLOTTED TO THE COMPULSORY SUBJECTS

School Organization	Grade 9	Grade 8	Grade 7
Type I (7-9)	76.4	73.7	73.9
Type II (7-12)	74.8	70.9	71.3
Type III (1-9)	77.4	74.0	74.2
Type IV (1-12)	72.8	70.3	71.0

Literature

The variations in time allotted to literature in the junior high schools are outlined in Table XV.

The Department of Education regulations state that the number of periods per week allocated to literature should be from three to four, based on a thirty-seven-and-a-half minute period. This indicates a range of from 112.5 to 150 minutes of instructional time

per week. The reported range, however, extends from sixty to 225 minutes.

The modal intervals for schools of all types lie within the range suggested by the department. It should be noted that the modal interval (105 - 119) of schools of Type I (7 - 9) occurs around the minimum requirements, whereas in Types II and IV it occurs at the next higher interval (120 - 134) and in Type III at 135 - 149 minutes.

TABLE XV

INSTRUCTIONAL TIME IN MINUTES PER WEEK
ALLOTTED TO LITERATURE

School Organization	Mean for Grade			Modal Interval	Range
	9	8	7		
Type I (N=21)	131.9	129.6	137.8	105 - 119	105 - 225
Type II (N=35)	138.6	136.6	138.5	120 - 134	94 - 205
Type III (N=53)	134.5	133.4	134.4	135 - 149	60 - 190
Type IV (N=44)	130.4	129.8	131.9	120 - 134	70 - 200
All (153) schools	133.9	132.6	135.1	120 - 134	60 - 225

Departmental Regulations -- 112.5 to 150 minutes.

The mean instructional time is highest for schools of Type II (7 - 12), while schools of Type IV (1 - 12) are lowest in grades 9 and 7 and Type I (7 - 9) in grade 8.

A "t" test for statistical significance was employed to determine the level of significance of the differences between the means for grade 9 of the four types of schools. The level required for significance was set at .05 but none of the differences proved to be signifi-

cant and the null hypothesis was retained.

The most notable characteristic of the time allotments in literature is the large number of schools providing instruction at or above the maximum requirement of 150 minutes per week. Out of the 153 schools reporting, forty-eight provide instruction at or above the maximum in grades 9 and 7, and forty-four do so in grade 8.

No schools of Type I fall below the interval containing the minimum requirements, but the remaining types show three schools offering less than the minimum requirements in grades 9 and 7, and five in grade 8.

Physical Education

The variations in time allotted to physical education in the junior high schools are outlined in Table XVI.

TABLE XVI

INSTRUCTIONAL TIME IN MINUTES PER WEEK ALLOTTED TO PHYSICAL EDUCATION

School Organization	Mean for Grade			Modal Interval	Range
	9	8	7		
Type I (N=21)	80.8	87.6	89.6	75 - 89	70 - 114
Type II (N=35)	98.3	92.5	92.5	60 - 74 75 - 89	70 - 160
Type III (N=53)	80.4	82.7	72.3	60 - 74	40 - 140
Type IV (N=44)	95.5	98.5	103.9	75 - 89	30 - 200
All (153) schools	88.9	90.5	91.8	75 - 89	30 - 200

Departmental Regulations -- 75 to 150 minutes.

The regulations as outlined by the Department of Education in the Junior High School Handbook require that physical education be offered from two to four periods per week. This provides for a range in time allotment of from seventy-five to 150 minutes per week. The reported range is from thirty to 200 minutes per week.

The modal intervals indicate considerable variation. The modal interval of schools of Type III (1-9) falls below the minimum requirements with the schools in this interval reporting mainly sixty and seventy minutes per week. There is a dual modal interval in grade 7 of schools of Type I. The interval below the requirements shows schools who report mainly seventy and seventy-two minutes per week.

One school of Type II and one of Type IV (two in grade 7) provide instruction at or above the maximum requirements. In grades 9 and 7, thirty-four schools provide less than the minimum instructional time required; in grade 8, thirty-three provide less.

The mean instructional time per week is highest for grade 9 in schools of Type II, and highest for grades 7 and 8 in schools of Type IV. All means fall within the departmental regulations.

In schools of Type IV, one school did not report physical education for grades 7 to 9, and one failed to report physical education for grades 7 and 8.

Mathematics

The variations in time allotted to mathematics in the junior high schools are outlined in Table XVII.

The Department of Education regulations require that mathematics be offered from four to six periods per week. The range of instructional requirement, based on a 37.5 minute period, is therefore from 150 to 225 minutes per week.

The modal interval (195 - 209) for schools of Type II and IV falls within the departmental requirements. The predominance of the forty minute period in schools of these types indicates that the instructional time is 200 minutes per week. The modal intervals for schools of Type I and III occur at or above the maximum requirements.

TABLE XVII

INSTRUCTIONAL TIME IN MINUTES PER WEEK
ALLOTTED TO MATHEMATICS

School Organization	Mean for Grade			Modal Interval	Range
	9	8	7		
Type I (N=21)	216.0	214.0	214.0	225 - 239	189 - 266
Type II (N=35)	214.5	216.6	217.1	195 - 209	188 - 260
Type III (N=53)	215.1	207.2	210.7	225 - 239	150 - 300
Type IV (N=44)	202.6	202.6	201.5	195 - 209	140 - 280
All (153) schools	211.6	209.0	210.1	195 - 209	140 - 300

Departmental Regulations -- 150 to 225 minutes.

The mean instructional time is highest for grade 9 in schools of Type I, and for grades 8 and 7 in schools of Type II. The lowest mean instructional times occur for all grades in schools of Type IV.

Table XVIII indicates that the differences between the means for grade 9 mathematics for schools of Type I, II and III were not statistically significant. The differences between the means of each of these types and that of Type IV schools were statistically significant at the .05 level. In these cases the null hypothesis was rejected and the differences may be considered as related to school type.

TABLE XVIII

STATISTICAL SIGNIFICANCE OF THE DIFFERENCES
BETWEEN MEANS IN GRADE 9 MATHEMATICS

School Organization		Type I	Type II	Type III	Type IV
Type I	(7-9)	--	nil	nil	.05
Type II	(7-12)	--	--	nil	.05
Type III	(1-9)	--	--	--	.05

A notable characteristic of these variations is that out of the 153 schools reported, fifty-seven provide instructional time at or above the maximum requirements in grade 9, fifty-one do so in grade 8, and fifty-six exceed or meet the maximum requirements in grade 7.

Two schools report less than the minimum instructional time requirements in grade 8 and one reports less in grade 7. The two schools involved are of Type IV (1 - 12).

It is noted that all schools of Type I and II offer at least

thirty minutes more than the minimum instructional time required.

Science

The variations in the time allotted to science in the junior high schools are outlined in Table XIX.

TABLE XIX

INSTRUCTIONAL TIME IN MINUTES PER WEEK
ALLOTTED TO SCIENCE

School Organization	Mean for Grade			Modal Interval	Range
	9	8	7		
Type I (N=21)	211.2	209.3	205.8	225 - 239	175 - 240
Type II (N=35)	214.5	212.1	213.6	195 - 209	188 - 260
Type III (N=53)	196.5	194.9	195.3	195 - 209	125 - 235
Type IV (N=44)	198.2	198.2	196.1	195 - 209	120 - 240
All (153) schools	203.1	201.7	201.2	195 - 209	120 - 260

Departmental Regulations -- 150 to 225 minutes.

The regulations of the Department of Education require that science be offered from four to six periods per week. Based on the 37.5 minute period, the range of instructional time is from 150 to 225 minutes per week. The reported range is from 120 to 260 minutes per week.

The modal interval for schools of Type I for grades 7 to 9 exceeds the maximum limit outlined by the department. All others fall within the limits set out.

The mean instructional time is highest for all grades in schools of Type II. The lowest mean instructional times for all grades occur in schools of Type III, and these means are approximately eighteen minutes less than those of the corresponding grades of schools of Type II.

Statistically the differences between the means in science in grade 9 for schools of Type I and II and for schools of Type III and IV are not significant at the chosen level. The differences between the means of schools of both Type I and II and those of Type III and IV are statistically significant as shown in Table XX.

TABLE XX

STATISTICAL SIGNIFICANCE OF THE DIFFERENCES
BETWEEN MEANS IN GRADE 9 SCIENCE

School Organization		Type I	Type II	Type III	Type IV
Type I	(7-9)	--	nil	.05	.05
Type II	(7-12)	--	--	.05	.05
Type III	(1-9)	--	--	--	nil

In science, as in mathematics, schools of Type II offer at least thirty minutes more than the minimum instructional time required. It is further noted that twenty-one, eighteen and nineteen of the fifty-six schools of Types I and II offer maximum or higher instructional time in grades 9, 8 and 7 respectively.

It is observed that the mean instructional time offered in mathematics is consistently higher than that offered in science, with the exception of grade 9 in schools of Type II where the means are identical. In particular, the mean instructional time in mathematics for schools of Type III is approximately 15 minutes greater than the mean for science.

Social Studies

The variations that exist in the time allotted to social studies are outlined in Table XXI.

TABLE XXI
INSTRUCTIONAL TIME IN MINUTES PER WEEK ALLOTTED
TO SOCIAL STUDIES

School Organization	Mean for Grade			Modal Interval	Range
	9	8	7		
Type I (N=21)	215.1	216.0	213.0	218 - 232	189 - 266
Type II (N=35)	221.5	221.0	219.7	233 - 247	188 - 273
Type III (N=53)	213.8	211.2	211.3	218 - 232	125 - 300
Type IV (N=44)	214.1	210.3	208.3	188 - 202	150 - 320
All (153) schools	215.8	213.9	212.6	188 - 202	125 - 320
Departmental Regulations -- 187.5 to 262.5 minutes					

Departmental regulations require that the time allotted to social studies falls within the range of 187.5 to 262.5 minutes per week, based on five to seven periods of 37.5 minutes each. The reported

range is from 125 to 320 minutes per week.

The distribution of time allotment is most uniform for schools of Type I and Type III where the number of schools offering a variation in range of thirty minutes per week is common, whereas in schools of Type II and IV the intervals containing the majority of schools are separated by a range of forty-five minutes. All modal intervals fall within the required range as set out by the department.

All schools of Type I and II offer instruction within the limits of the regulations with the exception of one school of Type I offering less in grade 7, and one of Type II offering less in grade 8.

The mean instructional time per week is highest for all grades in schools of Type II. The variation between the means for all types, however, is slight.

Tests of statistical significance of the differences between the means in grade 9 were carried out. The required level of significance for the rejection of the null hypothesis was not reached in any instance.

The mean instructional time for social studies, in some cases, does not exceed the mean instructional time for mathematics despite the increased emphasis of the departmental regulations.

Language

Table XXII indicates the variations in instructional time allotted to language.

The range of instructional time as set forth by the department

is from 187.5 to 262.5 minutes per week based on a 37.5 minute period. The range reported by the schools participating is from 100 to 320 minutes per week.

Schools of Type I and II remain almost exclusively within the limits set out by the department, with two of Type I and four of Type II offering instruction in grades 9 and 8 at or above the maximum limit. The modal interval for schools of Type I and III is the same (218 to 232) for all grades. The modal interval for schools of Type II is fifteen minutes higher. The school offering instruction for 100 minutes per week is a one-teacher rural school.

TABLE XXII

INSTRUCTIONAL TIME IN MINUTES PER WEEK
ALLOTTED TO LANGUAGE

School Organization	Mean for Grade			Modal Interval	Range
	9	8	7		
Type I (N=21)	222.2	220.5	218.9	218 - 232	175 - 280
Type II (N=35)	227.2	224.6	228.4	233 - 247	180 - 287
Type III (N=53)	207.7	212.4	208.7	218 - 232	100 - 270
Type IV (N=44)	207.8	204.3	207.8	188 - 202	140 - 320
All (153) schools	214.2	214.0	214.4	188 - 202	100 - 320

Departmental Regulations -- 187.5 to 262.5 minutes.

The mean instructional time for schools of Type I and II are approximately equal, with the mean for schools of Type II being the

greater. The mean instructional time for schools of Type II is approximately twenty minutes more than for schools of Type III and IV.

The results of tests of statistical significance for the differences between means in grade 9 are shown in Table XXIII. The required level of significance for the rejection of the null hypothesis was attained for the differences between the mean in schools of Type I with the means of schools of Type III and IV, and also between the mean of schools of Type II with those of schools of Type III and IV. The differences between the means of schools of Type I and II and between schools of Type III and IV were not significant.

TABLE XXIII

STATISTICAL SIGNIFICANCE OF THE DIFFERENCES
BETWEEN MEANS FOR GRADE 9 LANGUAGE

School Organization	Type I	Type II	Type III	Type IV
Type I (7-9)	--	nil	.05	.05
Type II (7-12)	--	--	.05	.05
Type III (1-9)	--	--	--	nil

Health

Table XXIV contains the variations in the instructional time allotted to health in the junior high schools of Alberta.

The departmental regulations provide for a range of 37.5 to seventy minutes of instructional time per week for grade 9, but

require two periods per week for grades 8 and 7, thereby providing, in essence, no range. The reported range for grade 9 is thirty to 150 minutes per week; for grades 8 and 7 it is thirty to 160 minutes per week.

TABLE XXIV

INSTRUCTIONAL TIME IN MINUTES PER WEEK
ALLOTTED TO HEALTH

School Organization	Mean for Grade			Modal * Interval	Range *
	9	8	7		
Type I (N=21)	52.0	77.2	29.1	30 - 44 75 - 89	35 - 86 70 - 120
Type II (N=35)	67.1	81.0	81.2	75 - 89 75 - 89	35 - 120 40 - 135
Type III (N=53)	59.7	80.7	83.5	30 - 44 60 - 74	30 - 150 40 - 150
Type IV (N=44)	57.5	78.5	80.4	30 - 44 75 - 89	30 - 150 40 - 160
All (153) schools	59.7	79.6	81.4	30 - 44 75 - 89	30 - 150 40 - 160

Departmental regulations -- 37.5 to 75 minutes (grade 9)
-- 75 to 75 minutes (grades 8 and 7)

* The reported modal intervals and ranges are listed first for grade 9 and then for grades 8 and 7.

The modal interval for grade 9 in schools of Type I, III and IV is from thirty to forty-four minutes per week. Generally speaking, this means the amount of instructional time is from thirty-seven to forty minutes per week due to period length. The modal interval for schools

of Type I, II and IV for grades 8 and 7 occurs at or above the maximum limit of the departmental requirements.

The mean instructional time per week is highest for schools of Type II in grade 9, and is 15.1 minutes greater than for schools of Type I. It is noted that the means for grades 8 and 7, for all types of schools, are higher than the maximum limits set out by the department.

Guidance IX

The variations in instructional time per week for grade 9 guidance are indicated in Table XXV.

TABLE XXV
INSTRUCTIONAL TIME IN MINUTES PER WEEK
ALLOTTED TO GUIDANCE

School Organization	Mean for grade 9	Modal Interval	Range
Type I (N=20)	68.8	75 - 89	38 - 86
Type II (N=32)	67.3	75 - 89	40 - 84
Type III (N=49)	66.9	60 - 74	33 - 150
Type IV (N=40)	69.7	75 - 89	25 - 120
All (141) schools	68.0	75 - 89	25 - 150

Departmental regulations -- 75.0 to 75.0 minutes.

The departmental regulations allow for no range in guidance in grade 9, but require seventy-five minutes per week based on two 37.5 minute periods. The reported range is from twenty-five to 150 minutes per week.

The modal interval for schools of Type I, II and IV occurs at or above the departmental requirement; for schools of Type III in the interval below. The modal interval for schools of Type III, however, reflects an instructional time of approximately seventy minutes based on two thirty-five minute periods.

An outstanding feature of this Table is the number of schools which do not report instruction in grade 9 guidance. One school does not do so in Type I, three in Type II, four in Type III, and four in Type IV.

II. SUMMARY

The departmental regulations as outlined in the Junior High School Handbook provide for a maximum variation of seventy-five minutes per week in each of physical education, mathematics, science, social studies, and language; a 37.5 minute variation in literature and health IX; and no variation in health VII and VIII or guidance IX. The reported variations are approximately double or triple the suggested variations, and in the case of literature it is more than quadruple. This would seem to indicate that junior high school administrators feel a need for extending the limits of the regulations to provide for more flexibility.

Examination of the means for all schools would seem to indicate that administrators are equating instruction in mathematics and science with that of social studies and language. This is further substantiated by investigating the modal intervals for these subjects

(the modal intervals overlap because of the selection of the interval). Both the means and the modal intervals for physical education indicate a general selection of minimum instructional time.

Tests of statistical significance of the differences between the mean amounts of instructional time per week in the examination subjects of grade 9 of the four types of school organization were carried out. The level of significance for the rejection of the null hypothesis was set at .05. In the examination subjects, literature and social studies, the differences between the means were not statistically significant in any instance. In mathematics the mean for schools of Type IV was significantly lower than the means of either of the remaining types, and no statistical significance in the difference between the means of the remaining types was found. In science and language the required level for statistical significance for the difference between the means of schools of Type I and II and Type III and IV was not obtained. For both subjects, however, the differences between means were significant when schools of Type I or II were compared with schools of Type III or IV.

Examination of the variations would appear to indicate general acceptance of the limits of the departmental regulations in literature, mathematics, and science, but approximately one-third of the schools are presently offering maximum or greater instructional time per week in these subjects (Table XII). Conversely only a few schools exceed maximum instructional time in physical education, social studies and language (Table XII).

CHAPTER VI

THE EXPLORATORY SUBJECTS

The data in this chapter deal with the exploratory subjects; art, dramatics, music, home economics, industrial arts, agriculture, community economics, oral French and typewriting of the junior high school curriculum.

I. THE EXPLORATORY SUBJECTS

Table XXVI provides an overview of the time allotted to the exploratory subjects and is a compilation of the information which appears in the subsequent tables dealing with the individual exploratory subjects.

The departmental regulations provide for a range of from seventy-five to 187.5 minutes per week based on two to five 37.5 minute periods for all the exploratory subjects. This range generally appears to meet the desires of junior high school administrators as the number of schools which fall either above or below these limits is minimal. Yet for each subject there are schools which either exceed or fail to meet the departmental requirements.

The intervals were selected on the same basis as for the compulsory subjects, that is, with the intention of showing the number of schools which offer instruction at or above the maximum requirements. It is for this reason that the modal intervals for all the exploratory subjects, with the exception of home economics and

TABLE XXVI

INSTRUCTIONAL TIME PER WEEK ALLOTTED TO THE EXPLORATORY
SUBJECTS IN 153 SCHOOLS

Subject	Departmental Regulations *	Mean for Grade		7	Modal Interval	Range
		9	8			
Art	75-187.5	91.3(52) ¹	96.5(85)	97.9(98)	68- 82	30-225
Dramatics	75-187.5	95.1(39)	91.6(40)	93.7(45)	68- 82	38-200
Music	75-187.5	92.6(45)	88.7(75)	94.4(97)	68- 82	50-225
Home economics	75-187.5	135.5(89)	133.8(84)	125.0(30)	113-127	70-200
Industrial arts	75-187.5	135.5(85)	134.2(81)	126.6(29)	113-127	70-200
Agriculture	75-187.5	105.5(8)	86.8(4)	120.0(2)	68- 82	38-200
Community economics	75-187.5	90.8(41)	90.5(40)	95.4(35)	68- 82	30-200
Oral French	75-187.5	104.3(77)	108.1(43)	108.1(41)	68- 82	40-200
Typewriting	75-187.5	106.1(52)	77.3(3)	80.0(1)	113-127	60-160

* These figures are based on the number of periods, each of 37.5 minutes, suggested in the Junior High School Handbook.

¹ The numbers which appear in brackets indicate the number of schools that offer the subject.

industrial arts, include times which are less than the departmental requirements. This interval of sixty-eight to eighty-two minutes, by virtue of the most frequent period lengths, includes schools which are in general utilizing thirty-five minute to forty minute periods and consequently are considered by the investigator as complying with the regulations. The majority of junior high school administrators appear to have settled on the two period per week minimum, subject to their individual allocation of period length, for all the exploratory subjects with the exception of home economics, industrial arts, and typewriting which are offered chiefly for three periods per week.

The mean instructional time per subject per week, with the exception of typewriting in grade 9, and home economics and industrial arts in grade 7, exceeds the upper limit of the modal interval by a considerable margin. This is in contrast with the means for the compulsory subjects (Table XI) which tend to fall within or near the modal intervals. This is attributable to the large number of schools which deem it advisable to offer the exploratory subjects for more than the minimum two periods per week.

The most commonly offered exploratory subjects in grade 7 are art and music. In grade 8, art and music still occur prominently but home economics and industrial arts are offered by a nearly equal number of schools. In grade 9, however, art and music are replaced and the most common exploratory subjects are home economics, industrial arts, and oral French. The remaining exploratory subjects, with the exception of agriculture (all grades) and typewriting (in grades 8

and 7) appear to meet the needs of administrators in providing an adequate selection for their schedules.

Departmental regulations as outlined in the Junior High School Handbook require that the minimum number of exploratory subjects taken in any one year shall be two, the maximum number three. Schools with fewer than three junior high school classrooms may, with the authorization of the superintendent, offer only one exploratory subject in grades 7 or 8. Table XXVII illustrates the variations that exist with respect to the number of exploratory subjects offered. One school contravenes the regulations by offering only one exploratory subject in grade 9; all other schools comply with the requirements.

TABLE XXVII

NUMBER OF EXPLORATORY SUBJECTS OFFERED
IN 153 SCHOOLS

Number of Exploratory Subjects	Number of schools reporting		
	Grade 9	Grade 8	Grade 7
1	1	12	13
2	139	128	128
3	10	7	9
2 or 3	3	6	3

Only thirteen of the 153 schools reporting offer three, or two or three exploratory subjects to their students in grades 8 and 9, and

twelve schools do so in grade 7. Of the thirteen schools offering the maximum number of exploratory subjects in grades 8 and 9, eight are schools of Type II (7-12).

The intent of the exploratory subjects is to provide a student with the "opportunity to explore his own growing interests and abilities in cultural and practical subjects other than those taken as compulsory" (1, p. 6.) The scheduling practices of junior high school administrators seem to indicate that they tend to minimize this aspect of their curriculum and prefer to accept the influence of the high school curriculum. There are practical considerations and pressures which suggest de-emphasis of the exploratory subjects and increased emphasis in the compulsory subjects such as lack of subject specialists and the use of external examinations in grade 9.

The percentage of time allotted to the exploratory subjects varies considerably between individual schools. Table XXVIII illustrates the extent of the variations among the schools of each type as well as between types of organization and grades.

The extensive variation in percentage of time allotted to the exploratory subjects is related to the principal's decision in scheduling developmental reading and/or study periods in grade 9, or developmental reading, guidance and student government and/or study periods in grades 8 and 7. As an example, four schools of Type I schedule both developmental reading and study periods, while eleven schools do not schedule either, with the result that these schools have 12.6 and 23.6 percent, respectively, of their instructional time

left for exploratory subjects. There are variations within schools as well, since all students may not be scheduled for the supplementary subjects and/or study periods.

The variations between types of school organization, when determined by using the percentage of time allotted and the mean length of school day for each type, indicate that schools of Type I, II, III and IV provide 39.5, 47.4, 43.7 and 50.1 minutes of instructional time per day, respectively, for the exploratory subjects at the minimum level in grade 9. This represents a difference of 53.0 minutes per week in the instructional time available at this level between schools of Type IV and Type I. Corresponding differences can be observed at all levels in each grade with the differences being accentuated at the minimum levels in grades 8 and 7.

TABLE XXVIII

PERCENTAGE OF TIME ALLOTTED TO THE
EXPLORATORY SUBJECTS

School Type	Grade 9	Grade 8	Grade 7
	*		
Type I	12.6(4)-23.6(11)	12.7(2)-26.3(3)	10.5(2)-26.1(2)
Type II	14.2(9)-25.2(8)	16.1(6)-29.1(2)	15.8(10)-28.7(2)
Type III	14.4(10)-22.6(14)	15.2(11)-26.0(7)	13.4(7)-25.8(5)
Type IV	15.5(13)-27.2(5)	17.0(17)-29.7(1)	15.7(14)-29.0(0)

* The numbers in brackets indicate the number of schools at that percentage level.

The variations between grade 9 and grades 8 and 7 take into consideration the fact that guidance is scheduled as a compulsory subject in grade 9. The variations that do exist between grades 8 and 7 within types of school organization should be noted as well as the small number of schools that do not schedule the supplementary subjects or study periods in these grades.

The remainder of this chapter is devoted to a brief discussion of each of the exploratory subjects.

Art

Art (Table XXIX) is offered in one school for thirty minutes per week and in another for 225 minutes per week. These extreme limits, however, tend to exaggerate the variations in time allocation. The

TABLE XXIX
INSTRUCTIONAL TIME IN MINUTES PER WEEK
ALLOTTED TO ART

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	81.7(12)*	102.5(13)	97.4(15)	40-225
Type II	35	115.2(12)	111.4(21)	109.1(27)	70-200
Type III	53	77.2(19)	87.2(27)	90.2(34)	30-140
Type IV	44	101.1(9)	90.8(24)	96.6(22)	45-160
All schools	153	91.3(52)	96.5(85)	97.9(98)	30-225

Departmental regulations -- 75 to 137.5 minutes.

* Numbers in brackets indicate the number of schools that offer Art.

trend is toward either two or three periods per week with the majority of schools offering art for two periods per week. The mean instructional time per week is substantially higher for schools of Type II than for the remaining types and is largely due to the greater period lengths common to schools of this type. The popularity of art as an exploratory subject is illustrated by the large number of schools which offer it. Approximately two-thirds of the schools offer art in grade 7, over half do so in grade 8, and in excess of one-third offer it in grade 9. Schools of Type I offer art more often than schools of any other type as over one-half of the schools offer it in all grades.

Dramatics

The scheduling practice of junior high school administrators with respect to dramatics (Table XXX) is to offer it for two or three

TABLE XXX
INSTRUCTIONAL TIME IN MINUTES PER WEEK
ALLOTTED TO DRAMATICS

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	95.1(10)*	93.3(8)	89.8(8)	40-152
Type II	35	100.3(7)	109.2(10)	114.5(10)	60-200
Type III	53	94.5(15)	86.2(14)	90.3(15)	38-150
Type IV	44	97.1(7)	78.5(8)	83.3(12)	60-160
All schools	153	95.1(39)	91.6(40)	93.7(45)	38-200

Departmental regulations -- 75 to 187.5 minutes.

* Numbers in brackets indicate number of schools that offer dramatics.

periods per week. The range indicates that dramatics is offered for one period (in three schools) or up to five periods (in two schools). Schools of Type II provide the greatest amount of instructional time per week for dramatics. The popularity of this exploratory subject is considerably less than that of art as less than one-third of the schools select dramatics as one of their exploratory subjects. Schools of Type I tend to schedule dramatics more often than schools of any other type.

Music

Music (Table XXXI) is selected by administrators with a similar overall frequency to that of art. Schools of Type I select music as an exploratory subject more often than schools of any other

TABLE XXXI

INSTRUCTIONAL TIME IN MINUTES PER WEEK ALLOTTED TO MUSIC

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	84.8(9)*	88.3(15)	99.4(20)	57-225
Type II	35	121.8(12)	101.1(18)	106.9(21)	70-200
Type III	53	78.7(14)	79.3(27)	84.0(36)	50-120
Type IV	44	83.0(10)	91.0(15)	95.0(20)	60-160
All schools	153	92.6(45)	88.7(75)	94.4(97)	50-225

Departmental regulations — 75 to 187.5 minutes.

* Numbers in brackets indicate the number of schools that offer music.

type as twenty of twenty-one schools offer music as an exploratory subject in grade 7. The mean instructional time is greatest in schools of Type II; however, the trend in offering music for two or three periods per week is maintained in all schools. The extreme limits of the range occur only once in each case--the lower limit of fifty minutes in a school of Type III and the upper limit of 225 minutes in a school of Type I.

Home economics

The amount of instructional time devoted to home economics (Table XXXII) represents three or four instructional periods per week.

TABLE XXXII

INSTRUCTIONAL TIME IN MINUTES PER WEEK ALLOTTED TO HOME ECONOMICS

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	130.6(18)*	132.4(19)	125.0(4)	70-172
Type II	35	133.1(29)	130.6(26)	110.7(11)	70-200
Type III	53	144.0(21)	138.2(21)	153.8(5)	105-180
Type IV	44	134.4(21)	131.8(18)	126.3(10)	80-180
All schools	153	135.5(89)	133.8(84)	125.0(30)	70-200

Departmental regulations -- 75 to 187.5 minutes.

* Numbers in brackets indicate the number of schools that offer home economics.

The tendency is for schools of Type I and III to schedule it for four periods per week, while schools of Type II and IV schedule it for three periods. No administrators schedule home economics for less than two periods per week. The mean instructional time per week is highest in schools of Type III. Administrators reverse the selection trend in this exploratory subject with the greatest number of schools offering home economics in grade 9 and the least in grade 7. Home economics is the most frequently selected exploratory subject in grade 9. The range (seventy to 200 minutes) is the least of any of the exploratory subjects except for industrial arts which is the same.

Industrial arts

Table XXXIII shows the variations in time allotted to industrial arts. This table is almost identical to Table XXXII (home economics)

TABLE XXXIII

INSTRUCTIONAL TIME IN MINUTES PER WEEK ALLOTTED TO INDUSTRIAL ARTS

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	126.9(18)*	128.2(19)	125.0(4)	70-172
Type II	35	135.4(26)	133.4(25)	113.8(10)	70-200
Type III	53	144.3(20)	139.1(20)	153.8(5)	105-180
Type IV	44	134.4(21)	130.2(17)	126.3(10)	80-180
All schools	153	135.5(85)	134.2(81)	126.6(29)	70-200

Departmental regulations -- 75 to 187.5 minutes.

* Numbers in brackets indicate the number of schools that offer industrial arts.

because of the tendency to offer both concurrently. Three schools of Type II and one of Type III that offer home economics do not offer industrial arts in grade 9. Industrial arts is the second most frequently offered exploratory subject in grade 9.

Agriculture

Table XXXIV presents the time allotment data for the exploratory subject agriculture. The small number of schools which select this subject as an exploratory subject seems to indicate that its presence in the junior high school curriculum is questionable. Perhaps more schools should offer this exploratory subject for two reasons: cultural heritage and economic importance.

TABLE XXXIV

INSTRUCTIONAL TIME IN MINUTES PER WEEK ALLOTTED TO AGRICULTURE

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	96.0(2)*	--	--	80-112
Type II	35	100.0(2)	--	120.0(2)	40-200
Type III	53	113.0(4)	76.7(3)	--	38-150
Type IV	44	--	117.0(1)	--	--
All schools	153	105.5(8)	86.8(4)	120.0(2)	38-200

Departmental regulations -- 75 to 187.5 minutes.

* Numbers in brackets indicate the number of schools that offer agriculture.

Community economics

Community economics (Table XXXV) follows the usual two period per week minimum instructional time, with a number of schools offering three periods per week. This subject demonstrates the least variation of all the exploratory subjects with respect to mean instructional time per week. The mean length of instructional time is greatest for schools of Type II in grades 9 and 8, and in schools of Type I in grade 7. The frequency of selection of community economics as an exploratory subject is similar to that of dramatics.

TABLE XXXV

INSTRUCTIONAL TIME IN MINUTES PER WEEK ALLOTTED TO COMMUNITY ECONOMICS

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	88.0(7)*	79.6(5)	105.5(4)	76-114
Type II	35	98.6(9)	98.0(13)	97.4(10)	60-200
Type III	53	88.5(16)	89.7(12)	92.2(10)	60-150
Type IV	44	89.4(9)	87.0(10)	92.9(11)	30-160
All schools	153	90.8(41)	90.5(40)	95.4(35)	30-200

Departmental regulations -- 75 to 187.5 minutes.

* Numbers in brackets indicate the number of schools that offer community economics.

Oral French

Slightly more than one-half of the schools offer oral French (Table XXXVI) as an exploratory subject in grade 9, and less than one-

third offer it in grades 8 and 7. This distribution is peculiar to oral French and may be the result of the influence of matriculation requirements. The mean instructional time per week is highest for schools of Type IV. One school offers oral French for one period only; the remainder tend to offer it for two or three periods. Schools of Type I offer it as an exploratory subject more often than any of the remaining types.

TABLE XXXVI

INSTRUCTIONAL TIME IN MINUTES PER WEEK
ALLOTTED TO ORAL FRENCH

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	92.8(16)*	110.0(11)	105.8(11)	70-160
Type II	35	112.0(21)	118.4(11)	110.2(10)	80-200
Type III	53	95.2(21)	95.1(11)	101.1(11)	40-140
Type IV	44	115.4(19)	120.0(10)	117.1(9)	75-200
All schools	153	104.3(77)	108.1(43)	108.1(41)	40-200

Departmental regulations -- 75 to 187.5 minutes.

* Numbers in brackets indicate the number of schools that offer oral French.

Typewriting

Typewriting (Table XXXVII) is well represented as a choice among the exploratory subjects in grade 9 but it is virtually neglected in grades 8 and 7. Typewriting in grade 9 is offered usually for two periods per week but the majority of the schools of Type III and IV

offer it for three periods. The mean length of instructional time per week is correspondingly highest for schools of Type IV. The range for typewriting indicates that it is offered for four periods at the maximum, one school of Type II, and two of Type IV offer it at this level.

TABLE XXXVII

INSTRUCTIONAL TIME IN MINUTES PER WEEK
ALLOTTED TO TYPEWRITING

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	103.0(5)*	72.0(1)	--	72 - 114
Type II	35	100.8(16)	80.0(2)	80.0(1)	76 - 160
Type III	53	99.2(11)	--	--	60 - 140
Type IV	44	114.9(20)	--	--	78 - 160
All schools	153	106.1(52)	77.3(3)	80.0(1)	60 - 160

Departmental regulations -- 75 to 187.5 minutes.

* Numbers in brackets indicate the number of schools that offer typewriting.

II. SUMMARY

The departmental regulations as outlined in the Junior High School Handbook provide for a range of from seventy-five to 187.5 minutes of instructional time per week based on two to five periods of 37.5 minutes for all the exploratory subjects. This range appears to

be adequate with the exception of typewriting which is offered for a maximum of 160 minutes per week. All subjects are in one or more cases offered for either less than the minimum or more than the maximum times suggested. The number of schools at the extremes of the reported ranges is very small.

The trend appears to be toward offering the exploratory subjects for two or three periods per week with the exception of home economics and industrial arts which lie mainly in the three to four period range. On the basis of the intervals selected, this represents a usual range of 113 - 172 minutes per week for home economics and industrial arts, and a usual range of sixty-eight to 127 minutes for the remaining exploratory subjects.

When considering schools by organizational type, schools of Type II (7 - 12) tend to demonstrate the greatest mean instructional time per week with three major exceptions. In the subjects, home economics and industrial arts, schools of Type III provide greatest mean instructional time per week, and in typewriting, schools of Type IV do so.

The selection of exploratory subjects is such that all are utilized in each grade. The order of preference in selection changes from grade to grade; in grade 7 music and art are the most common choices; in grade 8 music, art, home economics and industrial arts are the main selections; and in grade 9 the major selections are home economics, industrial arts, and oral French. In each grade the other exploratory subjects are well represented as alternates with the

exception of agriculture in grades 9, 8 and 7, and typewriting in grades 8 and 7.

The departmental regulations require that a minimum of two and a maximum of three exploratory subjects be offered to all grades, with the exception of schools having less than three junior high school rooms who then may offer one exploratory subject in grades 8 and 7. The trend is for most schools to offer the minimum number of exploratory subjects. Less than 10 percent of the schools offer three, or two or three exploratory subjects. Eight out of forty-four schools of Type II (7 - 12) offer three, or two or three exploratory subjects.

The percentage of time allotted to the exploratory subjects is related to the decision of the administrator. If an administrator chooses, he may schedule his entire day and week to the compulsory subjects and the exploratory subjects--a decision which would result in approximately 25 percent of the time being allotted to the exploratory subjects. Thirty-eight administrators plan their schedules in this manner in grade 9, fourteen in grade 8, and nine in grade 7. The administrator may also choose to schedule the supplementary subjects and study periods. (The supplementary subjects are developmental reading in grade 9, and developmental reading and guidance and student government in grades 8 and 7.) If this decision is reached then approximately 15 percent of the instructional time will remain for the exploratory subjects. Thirty-six principals schedule the supplementary subjects and study periods in grades 9 and 8, and thirty-three do so in grade 7. The remaining schools offer the exploratory

subjects for a percentage of time which varies between 15 and 25 percent. In practice, approximately 5 percent is devoted to the supplementary subjects and 5 percent to study periods with the result that the exploratory subjects are offered for roughly 15, 20, or 25 percent of the total instructional time for a given school.

REFERENCES FOR CHAPTER VI

- (1) Province of Alberta, Junior High School Handbook, (1962),
Department of Education.

CHAPTER VII

THE SUPPLEMENTARY SUBJECTS

This chapter deals with the supplementary subjects, developmental reading and guidance and student government grade VII and VIII. Table XXXVIII provides an overview of these subjects for all schools; Tables XL and XLI provide an analysis of these subjects by type of school organization.

I. THE SUPPLEMENTARY SUBJECTS

The supplementary subjects "are to be offered in schools where staff and facilities permit" (1, p. 6). These subjects differ from the exploratory or compulsory subjects in that they may be offered and their presence in a particular junior high school curriculum is based on a recognized need. The number of schools offering these subjects seems to indicate that administrators, generally, recognize their value.

The lower limit of the range for developmental reading--twenty minutes--is offered by one school. The maximum limit is offered by two schools in grades 8 and 9, and three schools in grade 7. The mean instructional time per week between grades has a variation of only 4.2 minutes for developmental reading, and 0.3 minutes for guidance and student government.

The most interesting consideration for Table XXXVIII is the large number of schools which offer the supplementary subjects.

TABLE XXXVIII

INSTRUCTIONAL TIME PER WEEK ALLOTTED TO THE SUPPLEMENTARY SUBJECTS

Subject	Departmental Regulations *	9	Mean for Grade 8	7	Modal Interval	Range
Developmental Reading	37.5-150	72.1(79) ¹	71.9(95)	76.1(107)	75-89	20-200
Guidance and Student Govt. VII & VIII	37.5-75	--	42.6(85)	42.9(82)	30-44	10- 95

* These figures are based on the number of periods, each of 37.5 minutes, suggested in the Junior High School Handbook.

¹ The numbers which appear in brackets indicate the number of schools that offer the subject.

The percentage of time allotted to the supplementary subjects is shown in Table XXXIX.

Schools of Type II (7 - 12) devote the greatest amount of time to the supplementary subjects. It would appear that slightly more time is devoted to developmental reading in grade 9 of schools of Type I; however, their mean instructional day is twenty minutes less than that of schools of Type II. The greater percentage of time devoted to the supplementary subjects in grades 8 and 7 is mainly due to the presence of guidance and student government as a supplementary subject in the junior high school curriculum, while guidance in grade 9 is scheduled as a compulsory subject. Variations, in percentage of time allotted to the supplementary subjects, between types of school organization must be considered slight.

TABLE XXXIX

PERCENTAGE OF TIME ALLOTTED TO THE
SUPPLEMENTARY SUBJECTS

School Organization	Grade 9	Grade 8	Grade 7
Type I	5.0	7.3	7.7
Type II	4.9	7.6	8.1
Type III	4.1	7.0	7.2
Type IV	4.6	7.2	7.4

Developmental Reading

Developmental reading as seen in Table XL is offered mainly for one or two periods per week, though a number do offer it for three to five periods. The modal intervals for grades and types of schools vary mainly because of the selection of intervals. The intervals of sixty to seventy-four and seventy-five to eighty-nine minutes both include schools that offer developmental reading for two periods and their presence in the interval is dependent on variation in period length.

Mean instructional time per week is greatest for schools of Type II, with schools of Type III offering developmental reading for approximately twenty minutes less per week in grade 9.

TABLE XL

INSTRUCTIONAL TIME IN MINUTES PER WEEK ALLOTTED TO DEVELOPMENTAL READING

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	77.9(8)*	70.3(9)=	76.5(13)	38-114
Type II	35	82.1(17)	77.6(19)	86.8(24)	35-200
Type III	53	62.3(29)	66.6(35)	71.2.(37)	30-200
Type IV	44	74.8(25)	74.7(32)	73.7(33)	20-160
All schools	153	72.1(79)	71.9(95)	76.1(107)	20-200

Departmental regulations -- 37.5 to 150 minutes.

* Numbers in brackets indicate the number of schools that offer developmental reading.

Proportionately more schools of Type IV offer developmental reading than schools of the remaining types. Probably the most interesting aspect of developmental reading is the large number of schools that schedule it.

Guidance and student government

Guidance and student government in grades 7 and 8 is offered chiefly on a one period per week basis (Table XLI). The variations between mean instructional times per week is small between types of organization and either non-existent or slight between grades within types. Here, as in developmental reading, it is interesting to note the number of school administrators who recognize the need for students of grades 8 and 7 to participate in this particular subject.

TABLE XLI

INSTRUCTIONAL TIME IN MINUTES PER WEEK ALLOTTED TO
GUIDANCE AND STUDENT GOVERNMENT IN GRADES 8 & 7

School Organization	N	Mean for Grade		Range
		8	7	
Type I	21	43.5(12)*	43.5(12)	30-75
Type II	35	48.5(19)	48.9(18)	40-80
Type III	53	39.9(30)	38.3(29)	15-95
Type IV	44	41.0(24)	43.5(23)	10-80
All schools	153	42.6(85)	42.9(82)	10-95

Departmental regulations -- 37.5 to 75 minutes.

* Numbers in brackets indicate the number of schools that offer guidance and student government.

The respondents were asked to indicate whether or not all students in the grade participated when the supplementary subjects were offered. In guidance and student government all schools reported that all students in each grade were involved. Developmental reading was offered to selected students in grade 9 in eight schools, in eleven schools in grade 8, and in fourteen schools in grade 7. The basis on which developmental reading was offered, as indicated by the school, was to include students of low or poor reading ability.

II. SUMMARY

The supplementary subjects of developmental reading and guidance and student government in grade 7 and 8 are placed on a junior high school schedule at the discretion of the administrator. Evidently a larger number of administrators recognize a need for these subjects. In general when they are offered they are scheduled for one or two periods per week in the case of developmental reading, and for one period per week in the case of guidance and student government. Only a few schools offered developmental reading on a selective basis. Approximately 5 percent of the instructional time is devoted to the supplementary subjects in grade 9, and 7 percent in grades 8 and 7. Schools of Type II indicate the highest mean instructional time for both developmental reading and guidance and student government.

REFERENCES FOR CHAPTER VII

- (1) Province of Alberta, Junior High School Handbook, (1962),
Department of Education.

CHAPTER VIII

STUDY PERIODS

This chapter provides information on study periods and the data are presented by school type.

I. STUDY PERIODS

Study periods, for the purpose of this study, are periods when no specific subject is scheduled. It presumes that during this time a student will have the opportunity to work independently. Departmental regulations do not require the presence of study periods in the junior high school curriculum; the decision to schedule study periods is entirely the prerogative of the principal.

The related literature of this thesis carries numerous allusions to independent study as a part of flexible scheduling. The past few years have produced increased emphasis for the need for independent study as a means of meeting individual differences and for fostering creativity. It would appear advisable for junior high school administrators in the Province of Alberta to consider this potentially useful opportunity in their scheduling.

The opportunity for independent study ranges from thirty minutes to 280 minutes per week. Students in grade 9 in one school have seven forty-minute periods per week for independent study. The presence of study periods in the schedule of a junior high school is most common in schools organized as Type IV (1 - 12) and Type II (7 - 12). Schools

of Type I appear to find the least time for study periods; however, those schools that do utilize the study period provide, at the mean, the greatest amount of time per week for study periods in grades 8 and 7. The mean amounts of time allotted to study periods for all schools reporting their use is 95.4 minutes per week for grade 9, 80.6 minutes per week for grade 8, and 88.5 minutes per week for grade 7.

Table XLII illustrates the time allotment and scheduling practices for study periods.

TABLE XLII

TIME IN MINUTES PER WEEK ALLOTTED TO STUDY PERIODS

School Organization	N	Mean for Grade			Range
		9	8	7	
Type I	21	93.7(6)*	99.6(8)	123.8(8)	36-240
Type II	35	102.1(19)	90.2(20)	80.3(21)	38-240
Type III	53	62.6(19)	58.2(25)	77.1(22)	30-225
Type IV	44	113.9(26)	87.6(31)	93.4(29)	30-280
All schools	153	95.4(70)	80.6(84)	88.5(80)	30-280

* Numbers in brackets indicate the number of schools scheduling study periods.

The modal intervals indicate that more schools schedule study periods once a week than for two or more periods since the interval chosen most frequently is thirty to forty-four minutes. The majority

of the schools schedule study periods for one or two periods per week.

The principal's decision to schedule study periods strongly influences his instructional time for the exploratory subjects. Table XLIII shows the percentage of time devoted to study periods.

TABLE XLIII

PERCENTAGE OF TIME ALLOTTED TO STUDY PERIODS

School Organization	Grade 9	Grade 8	Grade 7
Type I	6.0	6.3	7.9
Type II	6.1	5.4	4.8
Type III	4.1	3.8	5.2
Type IV	7.1	5.5	5.9

Schools of Type IV use a greater percentage of their instructional time for study periods in grade 9 than any of the remaining types of school organization. In grades 8 and 7 schools of Type I use the greatest proportion of their time for study periods. The range of percentage is from 3.8 percent of the instructional time for grade 8 in schools of Type III to 7.9 percent in grade 7 in schools of Type I.

Study periods are scheduled most frequently in schools of Type IV where thirty-eight of forty-four schools schedule study periods in at least one of the grades. Schools of Type II also

utilize study periods in the majority of cases.

Respondents were asked to indicate where students took their study periods. In schools where study periods are scheduled, these periods are usually spent in the students' home room or in another regular classroom. Of the ninety-six schools reporting study periods only eight report the use of the library as the exclusive center for this independent study, and seven schools state that either the library or the home room is used.

II. SUMMARY

It is probable that the importance of scheduled study periods for independent study will be greatly emphasized in the near future. Any school that moves in the direction of flexible scheduling will have to provide this opportunity.

This study indicates that the practice of scheduling study periods is already well established as ninety-six of the 153 schools included in this analysis utilize them in their program. Schools of Type IV use study periods most extensively.

Study periods are usually scheduled once or twice a week, though one school schedules seven forty-minute periods for 280 minutes per week. The mean length of time per week devoted to study periods is 95.4 minutes in grade 9, 80.6 minutes in grade 8, and 88.5 minutes in grade 7. Where study periods are scheduled, administrators can expect to utilize approximately 5 to 6 percent of their instructional time for them.

CHAPTER IX

RELIGIOUS INSTRUCTION

This chapter deals with the amount of time devoted to religious instruction. An attempt has also been made to show the effect this instruction has on the time allotment practices in these schools. Grade 9 was chosen as the grade for comparison.

I. RELIGIOUS INSTRUCTION

Religious instruction was offered on an extensive basis in twenty-seven schools. Table XLIV shows the number of minutes per week allotted to religious instruction. Only four amounts of time, 120, 150, 160, and 200 minutes per week, occur in these twenty-seven schools. The mean for grade 9 is 150.0 minutes per week, for grade 8 it is 149.3 and for grade 7--154.0. Period lengths for religious instruction are usually thirty minutes, but four schools use a forty minute period.

TABLE XLIV

DISTRIBUTION OF INSTRUCTIONAL TIME PER WEEK ALLOTTED
TO RELIGIOUS INSTRUCTION IN TWENTY-SEVEN SCHOOLS

Number of Minutes	Grade 9	Grade 8	Grade 7
200	1	1	1
160	1	2	2
150	23	21	22
120	2	3	2

Five additional schools reported offering religious instruction but were not included in the table because the instruction was given for only one period per week, and then was not offered to all students in the schools and/or not to all grades. One other school reports 225 minutes of instructional time per week devoted to religious instruction (five forty-five minute periods) however, the instruction was held from 8:00 to 8:45 a.m.

The number of schools offering religious instruction and the amount of time devoted to religious instruction warrants some further consideration of the program of these schools. Table XLV presents the data for the compulsory subjects of these schools in order that comparisons can be made.

In each of the compulsory subjects, the mean instructional time per week for schools offering religious instruction is less than the mean for schools not offering religious instruction. The differences between the means for literature, physical education and guidance are minimal. In the remaining compulsory subjects the differences extend from 9.5 to 14.7 minutes per week. These schools tend to follow the pattern of equating instructional time for mathematics with that of social studies and language.

The mean length of school day for the schools offering religious instruction (excluding recess) is 317.6 minutes; for schools not offering religious instruction it is 317.5 minutes. Both times are based on instructional time allotted in grade 9. However, one should consider that the former includes 30.0 minutes per day in religious

instruction, based on a mean of 150.0 minutes per week, leaving a net length of school day of 287.6 minutes.

The sum of means for the compulsory subjects of schools offering religious instruction is 1135.2 minutes per week; for those schools not offering religious instruction it is 1207.8. On the basis of lengths

TABLE XLV

MEAN NUMBER OF MINUTES OF INSTRUCTIONAL TIME PER
WEEK ALLOTTED TO THE COMPULSORY SUBJECTS
IN GRADE 9 FOR TWENTY-SEVEN SCHOOLS
THAT OFFER RELIGIOUS INSTRUCTION

Subject	Mean number of minutes	Difference between means
Literature	131.7 (134.4)*	2.7
Physical education	88.5 (88.9)	0.4
Mathematics	201.8 (213.4)	11.6
Science	192.8 (205.3)	12.5
Social Studies	201.1 (219.0)	17.9
Language	202.2 (216.7)	14.5
Health	50.2 (61.8)	11.6
Guidance	66.9 (68.3)	1.4

* These figures are the mean number of minutes of instructional time per week for schools not offering religious instruction.

of school day, this leaves 302.8 minutes per week to be allotted in the remainder of the schedule in schools offering religious instruction, compared with 379.7 minutes in schools that do not. This indicates

that the 150 minutes per week allotted to religious instruction results in a net loss of 72.6 minutes per week for the compulsory subjects, and 76.9 minutes per week for the remainder of the schedule.

An alternative means of comparison is established through the determination of the percentage of time devoted to the various aspects of the schedule of a school offering religious instruction. Table XLVI shows the percentage of time devoted to the compulsory subjects, the exploratory subjects, developmental reading, study periods and religious instruction in grade 9, in schools offering religious instruction.

TABLE XLVI

PERCENTAGE OF INSTRUCTIONAL TIME IN GRADE 9 DEVOTED
TO ALL ASPECTS OF THE SCHEDULE OF SCHOOLS
OFFERING RELIGIOUS INSTRUCTION

Compulsory Subjects	Exploratory Subjects	Develop- mental Reading	Study Periods	Religious Instruction
71.5	11.5(8) - 19.1(3)	3.3	4.3	9.4

The percentage of time allotted to religious instruction (9.4 percent) appears to be evenly distributed in reducing the percentages in the remaining four areas when one compares these areas with those of the four different organizational types utilized in the main body of this study. The range of percentage of time for the compulsory subjects in the four different organizational types is from 72.8 to

77.4 compared with 71.5 percent in schools offering religious instruction. Similarly, developmental reading and study periods in the four different organizational types range from 4.1 to 5.0 and from 4.1 to 7.1 percent respectively, compared to 3.3 percent for developmental reading and 4.3 percent for study periods in schools offering religious instruction.

Eight of the twenty-seven schools that offer religious instruction also schedule developmental reading and study periods, thereby allotting 11.5 percent of their instructional time to the exploratory subjects as compared to a range of from 12.6 to 15.5 percent for schools of the four organizational types. The maximum percentage of the time available to exploratory subjects occurs in three schools (out of twenty-seven) offering religious instruction compared with thirty-five schools (out of 126) that do not offer religious instruction. The range in percentage of time available in schools that do not offer religious instruction is from 22.6 to 27.2 percent at the maximum compared to 19.1 percent for schools that do offer this instruction.

Direct comparisons between types of school organization and schools offering religious instruction are subject to a small error. The percentages for the different types of organization include schools that do offer religious instruction; if these schools were excluded the percentages in all cases would be slightly higher.

It appears that schools offering religious instruction tend to reduce the time allotted to each subject in order to accommodate

this aspect of their curriculum. It is not within the scope of this thesis nor is it the intent of the investigator, at this time, to attempt to evaluate what the differences might mean to the individual student.

II. SUMMARY

Twenty-seven schools report religious instruction on an extensive basis. The mean amount of instructional time per week devoted to it in grade 9 is 150.0 minutes, in grade 8--149.3 minutes and in grade 7 it is 154.0 minutes. The period length usually devoted to religion is thirty minutes but four schools utilize a forty-minute period.

The mean instructional time for the compulsory subjects in schools offering religious instruction is 72.6 minutes per week less than the mean instructional time for the same subjects in the schools that do not schedule religious instruction.

The percentage of instructional time devoted to the compulsory, exploratory and supplementary subjects and study periods is slightly reduced in each case to accommodate the 9.4 percent of instructional time devoted to religious instruction.

CHAPTER X

DEPARTMENTALIZED INSTRUCTION AND GROUPING PRACTICES

This chapter deals with two aspects of horizontal organization, departmentalized instruction and grouping practices.

I. DEPARTMENTALIZED INSTRUCTION

"The main argument advanced for a departmentalized curriculum taught by different teachers is that subject matter specialists bring richer teaching and learning into the classroom." (1, p. 79) In an effort to determine administrators' decisions with respect to departmentalization, principals were asked to indicate whether or not their school provided departmentalized instruction. In view of the large number of small schools, instruction was considered as being departmentalized where the home room teacher was not the sole instructor. The results, outlined in Table XLVII, indicate that departmentalized instruction is the common practice. Of the 153 schools reporting only fifteen schools report no departmentalization in any of the junior high school grades. In addition, three schools report departmentalization in grades 9 and 8 and no departmentalized instruction in grade 7. All remaining schools offer departmentalized instruction to all grades. All schools of Type I (7 - 9) offer departmentalized instruction to all grades, whereas exceptions exist in the remaining types of organization. Of the schools which do not offer departmentalized instruction, six are one-teacher rural schools organized as

Type III (1 - 9).

TABLE XLVII

NUMBER OF SCHOOLS HAVING DEPARTMENTALIZED INSTRUCTION

School Organization	Grade 9		Grade 8		Grade 7	
	Yes	No	Yes	No	Yes	No
Type I (7-9)	21	--	21	--	21	--
Type II (7-12)	35	--	35	--	33	2
Type III (1-9)	41	12	41	12	41	12
Type IV (1-12)	41	3	38	6	37	7

II. GROUPING PRACTICES

The question of grouping practices is summed very succinctly in Planning and Organizing for Teaching from the National Education Association Project on Instruction which states:

Educators and lay citizens tend to hold rather strong views about whether or not to separate the sexes, whether or not to group by ability, whether or not classes should be consistently small, and so on. Research into the merits of various patterns of interclass grouping is inconclusive, controversial, and misleading, in part because the range of evaluative instruments available for measuring outcomes is much narrower than the range of benefits claimed by advocates of the various positions.
(1, p. 71)

The investigator wished to determine how many schools grouped classes within the school on the basis of ability and/or achievement. Respondents were asked to indicate whether or not students were grouped either by ability or by achievement. Table XLVIII gives the number of

schools that report grouping practices other than heterogeneous grouping. The numbers in brackets indicate the number of schools where grouping is possible; that is, where two or more registers for that grade exist. On a percentage basis it would seem that schools of Type III use grouping by either ability or achievement to the greatest extent. In most cases, the same grouping practices are used for all grades, though there are some notable exceptions. Of the schools of

TABLE XLVIII

NUMBER OF SCHOOLS THAT REPORT GROUPING BY
EITHER ABILITY OR ACHIEVEMENT

School Organization	Grade 9	Grade 8	Grade 7
Type I (7-9)	14(21)*	12(21)	15(21)
Type II (7-12)	11(30)	10(30)	13(30)
Type III (1-9)	7(10)	8(11)	9(11)
Type IV (1-12)	6(10)	3(8)	3(7)

* Numbers in brackets represent the number of schools which have two or more registers for that grade.

Type I which report grouping by ability or achievement, one school reports using a "top" group in each grade with the remainder grouped heterogeneously. Another reports using a "top" group in each grade, a low group in grades 7 and 8, a special "adaptation" class and the remainder grouped heterogeneously. Two schools report an M.P.H. (Matriculation--Pass--Honors) program for one class of grade 7 with

students coming from surrounding schools as well as the host school. In one other school special classes appear to be used extensively with the principal reporting the existence of opportunity, adaptation, pre-employment, and modified curriculum classes.

Two schools of Type II have special arrangements of ability or achievement grouping; one states that special classes are offered to low achievers in grade 7, and the other has a "top" class in each grade with the remaining students grouped heterogeneously. One school of Type III reports special arrangements and employs a class of low achievers in grade 9 and a modified class in grade 7.

Interestingly, one school (Type II) reports that it was not grouping by ability or achievement in the year 1963-4 but would revert to the practice in 1964-5. Another school (Type III) states, "We are grouping (by ability or achievement) this year but it is not at all acceptable. We do not plan to continue the practice". It appears that junior high school administrators in Alberta are rather evenly divided with respect to the practice of interclass grouping by ability or achievement as thirty-eight of seventy-one schools group on these lines in grade 9, thirty-three of seventy in grade 8, and forty of sixty-nine schools do so in grade 7.

III. SUMMARY

Departmentalized instruction is widespread throughout the junior high school grades. Of 147 schools that could provide departmentalized instruction only fifteen did not do so in grade 7, twelve

in grade 8, and nine in grade 9.

Administrators appear to be evenly divided with respect to grouping practices. Approximately half of the schools have interclass grouping either by ability and/or achievement. A number of the larger schools differentiate their grouping practices by selecting "top" and "low" achievers, placing them in separate classes and grouping the remainder heterogeneously.

REFERENCES FOR CHAPTER X

- (1) Project on Instruction, Planning and Organizing for Teaching, Washington, D. C.: National Education Association, 1963.

CHAPTER XI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

I. SUMMARY

The main purposes of this study were to determine and to compare the variations in time allotment and scheduling practices in the different junior high school organizations.

The study was conducted through the use of a questionnaire. The questionnaires were sent to the principals of 186 schools representing four different organizational patterns. These organizational patterns were identified as Type I (grades 7 - 9), Type II (grades 7 - 12), Type III (grades 1 - 9) and Type IV (grades 1 - 12). The response was in excess of 80 percent.

It was found that the mean length of instructional time per day was 317.5 minutes based on grade 9 for the 153 schools included. The instructional time per day did not include time allotted to recess--a practice which is disappearing in schools of Type I and II. The schools organized on the basis of grades 7 - 12 (Type II) had a mean length of instructional time per day of 334.0 minutes and all but one of these schools had an instructional day in excess of 320 minutes. A statistical test of the differences between mean lengths of school day of the four organizational types indicated that the differences were significant at the .01 level. It may be assumed that the length of school day is related to type of organization. With very few exceptions, administrators tend to prefer the eight period day as

the basis of their weekly schedules. Length of instructional periods varied from fifteen to sixty minutes but the majority of administrators prefer to use a single period length for their schedules and the most common period length is forty minutes.

Administrators apparently feel a need for extending the limits of the departmental regulations to provide for more flexibility in scheduling the compulsory subjects. The reported variations are double and triple the suggested variations. There appears to be a tendency among administrators to equate instruction in mathematics and science with that of social studies and language even though the departmental regulations suggest that both the minimum and maximum times for the latter subjects be 37.5 minutes more. Approximately three-quarters of the instructional time available is devoted to the compulsory subjects.

Schools organized as Type II (7 - 12) tend to provide more instruction time per week in the compulsory subjects than schools of the remaining types of organization. The mean length of instructional time per week is usually greatest for schools of Type II.

A statistical test of the differences between the mean amounts of instructional time per week in the compulsory subjects tested by external examinations was carried out. No significant differences occurred between any of the four types of school organization in literature or social studies. Mathematics, science and language did present some significant differences between types of school organization.

The study revealed that the exploratory subjects tend to be

offered for two or three periods per week with the exception of home economics and industrial arts which are commonly offered for three or four periods per week. Very few schools provide students with the opportunity of taking three exploratory subjects in a given year, most report two exploratory subjects. The exploratory subjects most common in grade 7 are music and art; in grade 8, music, art, home economics and industrial arts; and in grade 9, home economics, industrial arts and oral French. The percentage of time allotted to the exploratory subjects depends on the administrator's decision with respect to scheduling the supplementary subjects and/or study periods. The amount of time available for the exploratory subjects varies from approximately 10 to 30 percent.

Administrators tend to comply with the range of flexibility in the exploratory subjects. Only a very few schedule the exploratory subjects beyond the limits of the departmental regulations.

The supplementary subjects, developmental reading and guidance and student government, are offered at the discretion of administrators. Over half of the schools in the study report the placement of these subjects on their schedules. The percentage of time allotted to the supplementary subjects is approximately 5 percent in grade 9, and 7 percent in grades 8 and 7. Where these subjects are offered, usually all students participate in the instruction. A few schools indicate offering developmental reading on a selective basis.

The study indicated that most schools provide departmentalized instruction and that approximately one-half of the schools group their

students by either ability and/or achievement. A few schools reported some variations in grouping by either ability and/or achievement through the use of special classes such as classes for "top" students, opportunity classes, adaptation classes, modified curriculum classes and pre-employment classes.

The opportunity for independent study through the use of scheduled study periods is available in the majority of schools. The amount of time allotted to study periods ranges from 4 to 8 percent of the total instructional time. This independent study is usually carried on in the students' home room, only eight schools report the library as the exclusive center for study periods.

The investigator considered it desirable to make some comparisons between schools offering religious instruction and schools that do not offer religious instruction. Twenty-seven schools offer religious instruction to all their students and represent the basis for the data. Schools offering religious instruction have an instructional day of 287.6 minutes, excluding religious instruction and recess, as compared to 317.5 minutes for schools that do not schedule religious instruction. This difference of 150 minutes per week results in a net loss of 72.6 minutes per week for the compulsory subjects and 76.9 minutes per week for the exploratory and supplementary subjects and/or study periods.

II. CONCLUSIONS

1. Schools organized on the basis of providing instruction in

grades 7 - 12, inclusive, tend to have the longest instructional day. This increased time is probably a direct reflection of the senior high school time requirements.

2. The compulsory subjects in total take up approximately 75 percent of the instructional time available.
3. The time allotted to mathematics and science is approximately equal to that offered to social studies and language.
4. The ranges in the time allotments indicate that many administrators find that the "range" in instructional time as outlined in the departmental regulations is not sufficiently extensive for the compulsory subjects but is more than adequate in the case of the exploratory and supplementary subjects.
5. The number of exploratory subjects available to a student is usually two in any given year, and only rarely does he have a choice in selection.
6. The time allotted to the exploratory subjects ranges from approximately 10 to 30 percent of the total time. The range is a direct reflection of the principal's decision in scheduling the supplementary subjects and/or study periods.
7. The percentage of time allotted to the supplementary subjects is approximately 5 percent in grade 9, and 7 percent in grades 8 and 7.
8. Departmentalized instruction is provided in almost every case where departmentalization is possible.
9. Interclass grouping by either ability and/or achievement reflects

the homogeneous--heterogeneous grouping controversy as approximately one-half of the schools group by either ability and/or achievement.

10. Study periods tend to take up from 4 to 8 percent of the total time scheduled.

11. The total time available to students in schools providing religious instruction is usually reduced by 150 minutes per week. Approximately half the time used for religious instruction is taken from the compulsory subjects, with the other half of the time reducing the time available for the exploratory and supplementary subjects and study periods.

III. RECOMMENDATIONS

The importance of the schedule as it reflects the aims and objectives of the school and community necessitates careful thought and planning in its construction. There are several areas that can be considered which might enhance the scheduling practices of junior high school administrators in Alberta.

1. It is recommended that where possible the length of the school day be increased to approximate more closely the length of day of schools organized on the basis of providing instruction in grades 7 - 12. It is suggested that this increase in time would result in greater equity of opportunity, for all students, in academic achievement and experiential background in the vocational and related fields.

2. It is recommended that experimentation in and investigation

of the time allotted in the individual subject fields be conducted. The study reveals that wide variations exist in time allotments; the related literature indicates that knowledge of what should be done is lacking. In order for administrators to provide the best schedule possible more information must be made available to them.

3. Experimentation in flexible scheduling to provide for the most effective utilization of time and staff is current. It is recommended that administrators should concern themselves with this approach in order to increase the effectiveness of their schedules. Assistance and encouragement in planning and organizing flexible schedules should be made available from the Department of Education and the Alberta Teachers' Association Council on School Administration.

4. The objective of the exploratory subjects is to provide the individual student with an awareness of a variety of vocational and cultural experiences. The present study indicates that administrators should do more in this area if they are to fulfil their obligations to the students and the community.

5. Religious instruction, if provided, should be scheduled in addition to the regular school day. If equality of opportunity is desirable--the study indicates that students in schools that provide religious instruction receive substantially less instructional time--administrators in these schools should endeavour to provide it.

The number of variables and factors affecting academic achievement preclude a simple study related to the time factor only. If such a study were attempted the writer would suggest a comparison

within the compulsory subjects, of the achievement of students in schools offering religious instruction with that of student achievement in schools not offering religious instruction.

A study might also be conducted in an attempt to determine the philosophy of the junior high schools of Alberta, having regard for the expectations of administrators, parents and students.

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APPENDIX A
QUESTIONNAIRE

JUNIOR HIGH SCHOOLS OF ALBERTA

TIME ALLOCATION AND SCHEDULING PRACTICES QUESTIONNAIRE

A. DESCRIPTION AND CLASSIFICATION

1. Instruction in this school is offered in the following grades:

CHECK ONE

- 1. 7 - 9
- 2. 7 - 12
- 3. 1 - 9
- 4. 1 - 12
- 5. Other (State)

2. This school is situated in a community of:

CHECK ONE

- (a) More than 10,000 population
- (b) Between 5,000 and 10,000 population
- (c) Less than 5,000 population

3. COMPLETE. (Including those teachers who may be teaching only one subject).

- (a) Total number of teachers giving instruction in the junior high school grades. (7, 8, and 9).
.....

- (b) Number of teachers giving instruction in Grade 9.
.....

- (c) Number of teachers giving instruction in Grade 8.
.....

- (d) Number of teachers giving instruction in Grade 7.
.....

4. COMPLETE. The number of classes of: (i.e. the number of registers) .

- (a) Grade 9
- (b) Grade 8
- (c) Grade 7

5. This school provides departmentalized instruction in the following grades (i.e. the home room teacher is *not* the sole instructor).

CHECK those which apply.

- (a) Grade 9
- (b) Grade 8
- (c) Grade 7
- (d) None of these

6. Are your students grouped either by Ability or by Achievement?

CHECK either YES or NO.

- (a) Grade 9. 1. Yes 2. No
- (b) Grade 8. 1. Yes 2. No
- (c) Grade 7. 1. Yes 2. No
- (d) Other grouping practices. (State).
.....
.....
.....
.....
.....
.....
.....

B. LENGTH OF SCHOOL DAY

COMPLETE.

- (a) Morning Session:
beginsa.m. ends

- (b) Afternoon Session:
..... p.m.; p.m.

- (c) Number of minutes for recess (if applicable):

- Grade 9a.m.;p.m.
- Grade 8a.m.;p.m.
- Grade 7a.m.;p.m.

C. INSTRUCTIONAL PROGRAM

Instruction in this school is offered in the following subjects as indicated. (It is anticipated that in the majority of cases the second line will not be required. It is placed there to allow for variations where they do exist).

COMPLETE.

(min/wk. is read as minutes per week).

C. 1. Compulsory Subjects

Literature

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Physical Education

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Mathematics

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Science

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Social Studies

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Language

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Health

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Guidance

Grade 9 periods of min/wk.
plus periods of min/wk.

C. 2. Exploratory Subjects

(a) The number of exploratory subjects taken by an individual student this year is as follows:

COMPLETE.

Grade 9
Grade 8
Grade 7

If you have any remarks to make on your exploratory subject program, please comment. (e.g., special organization such as combining of grades, etc.).

.....
.....
.....
.....
.....
.....

Art

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Dramatics

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Music

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Home Economics

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Industrial Arts

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Agriculture

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Community Economics

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Oral French

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

Typewriting

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

C. 3. Supplementary Subjects

Developmental Reading

Grade 9 periods of min/wk.
plus periods of min/wk.
Grade 8 periods of min/wk.
plus periods of min/wk.
Grade 7 periods of min/wk.
plus periods of min/wk.

over

APPENDIX B
LETTERS TO PRINCIPALS

Box 1350,
St. Albert, Alberta.

Fellow Principal:

The enclosed questionnaire is the means I have selected for collecting the data I will require in order to do an analysis of the time allocation and scheduling practices in the Junior High Schools of Alberta. The study is in partial fulfilment of the requirements of the degree Master of Education. It is being conducted under the direction of Dr. E. Miklos and has been approved by the Department of Educational Administration, University of Alberta.

The study will attempt to discover the variations that exist in the time allocation and scheduling practices of our junior high schools. Specifically, it will show the means, modes and ranges of time allotment in each of the subject fields and point out the variations that exist within and among the various types of junior high school organizations (see A. 1 of the questionnaire). It should indicate subject emphases and should also provide general information in such scheduling practices as period lengths and number of periods per week.

I am enlisting your aid in this endeavour and assure you that your cooperation will be most highly appreciated. Anonymity is not a problem in a study of this nature, but anonymity will be maintained. The questionnaires are numbered solely for the purpose of the collection of data.

Please return the completed questionnaire in the enclosed envelope. Thank you in advance for your cooperation.

Yours sincerely,

E. Lloyd Deutscher

Box 1350,
St. Albert, Alberta,
May 25, 1964.

Fellow Principal:

In mid-April, you should have received a copy of the Junior High Schools of Alberta Time Allocation and Scheduling Practices questionnaire. In checking the responses I notice that the questionnaire sent to you has not been returned. I am therefore taking the liberty of sending an additional questionnaire and self-addressed envelope in case the previous questionnaire did not reach you or has been mislaid.

Your cooperation at this time would be highly appreciated.

Yours sincerely,

E. L. Deutscher

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